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DR. DRYSDALE'S *Hiſtory of the Yellow Fever at Baltimore, continued from page* 42.

LETTER IV.

YOU have demonſtrated, dear ſir, in your late invaluable work, how far the "ſimplex munditiis" triumphs over the pedantic phraſeology and mechanical forms of the ſchools; and how much more elegance truth may acquire, from the natural garb of ſimplicity. I will therefore endeavour to imitate your example, whilſt I detail the ſymptoms that appeared in the various ſyſtems of the body, which I will purſue, as forming the different diviſions termed by phyſiologiſts the *vital*, *animal*, and *natural functions*.

I. In the VITAL FUNCTIONS we include the ſanguiferous ſyſtem, the organs of reſpiration, and the brain and its appendages. I ſhall examine the ſymptoms,

1. *In the Sanguiferous Syſtem.*

The phenomena exhibited by the blood-veſſels were greatly varied in ſome reſpects, uniform in others, and intereſting in all. Whether we apply this obſervation to the varying conditions of the pulſe, or to that convulſive action of the arterial ſyſtem, which often burſt aſunder the coats of the veſſels, the reſult will be equally juſt and ſtriking. The influence of the

late yellow fever was diſcovered under the following appearances as it related to the

Pulſe.

The pulſe was *tenſe* in every form of the diſeaſe from its firſt appearance till its declenſion in October. It bore this peculiar character in the remiſſions of the fever; and even when it commenced its career under the inſidious cover of an intermittent. It was alſo *quick;* the mind would be deceived into a belief, that the pulſe was ſlower than it really was, upon account of this peculiarity in its nature,—the ſyſtole of the heart being performed in an inſtantaneous period of time.

Under the impreſſion of every temperature of the air, and under every degree of violence of the diſeaſe, the pulſe held forth another emblem of its character, by *hobbling* through its functions. A full pulſation was ſucceeded by another of leſs force, and no two ſucceſſive ſtrokes reſembled each other in frequency. In one perſon, I counted three pulſations in one-ſixth of a minute; in another ſixth, they amounted to the number of fifteen. This irregularity was more or leſs obſervable in every caſe, and in every period of the diſeaſe.

In many inſtances an *intermiſſion* occurred in the pulſe. It took place after the ſecond, third, fourth, fifth, or ſixth ſtroke. This was ſtrongly exemplified in one caſe, in which the intermiſſions were more frequent, when a diminiſhed heat of the extremities indicated a ſlight remiſſion of fever. This condition of the pulſe occurred ſometimes after the fourteenth ſtroke; and I well remember to have obſerved in the convaleſcence of a perſon who recovered from a very violent attack, an intermiſſion in the pulſe to which he was not ſubject when in health.

The pulſe varied much alſo as to its fulneſs and frequency. While the very hot weather added to the violence of the fever, a ſmall pulſe was more generally obſervable; but it acquired increaſe of fulneſs, as the ſeaſon advanced. In the firſt hours, I have ſometimes obſerved the pulſe almoſt imperceptible at the

wriſts: nor was it an unuſual occurrence, that the pulſe, a ſhort period before the triumph of death, became more full, than it had been in the early ſtage of the diſeaſe.

Within the few firſt hours of the diſeaſe, the pulſe varied in different perſons, from fifty pulſations to an hundred and forty-two. After the firſt day, it ranged generally from eighty-five to ninety-five in the ſame period of time; but as death approached, it became ſlower, while it preſerved its fulneſs to the laſt minutes of life.

How ſhall we account for theſe peculiar phenomena in the ſanguiferous ſyſtem? Why is the pulſe ſometimes ſmall, ſometimes full, but always irregular and tenſe in the yellow fever?

The tenſion of the pulſe is ſo common an occurrence, that it will be almoſt uſeleſs to dwell on it for a moment. This ſpecies does not depend upon the action of the heart alone, but upon that of the arteries alſo upon the blood. There was a firmneſs in theſe latter veſſels, that prevented them from yielding readily to the preſſure of the fingers. It is ſufficiently obvious that the tenſeneſs of the pulſe depends further, upon exceſs of ſtimulus acting on the heart and arteries. May not the ſmallneſs of the pulſe be referred to the ſame cauſe? May it not be inferred from the following circumſtances, that it depended upon exceſs of ſtimulus?—When the great ſtimulating power of heat was ſuperadded to that of the remote cauſe of the fever, or when this remote cauſe was rouſed with ſudden violence into action, this condition of the pulſe was moſt obſervable. But when the ſtimulus of heat was abſtracted in a great degree by the progreſs of autumn, the ſmallneſs of the pulſe was ſeldom a prevailing ſymptom. We may infer it alſo from the nature of the means, which removed the ſmallneſs and gave fulneſs to the pulſe. Did not the exceſſive ſtimulus, applied eſpecially to the heart, excite its contractions before its ventricles were filled with blood, (for it was not only ſmall, but frequent;) and therefore by protruding no great quantity at each ſyſtole, and the firmneſs of the arteries not eaſily yielding to its impulſe, their diſtenſion appeared inconſiderable?

The ſlowneſs of the pulſe may be referred in part to a morbid ſtate of the brain. That there was an unuſual tendency of the blood to the head, is evident from the ſuffuſion of the face, the redneſs of the eyes, and the dilatation of the pupils, which latter ſymptom occurred almoſt without exception after the middle of September. It is farther deducible from the conſtant ſtupor and drowſineſs very frequently accompanying the diſeaſe, and from the coma, delirium and hæmorrhages from the noſe. The engorged ſtate alſo of the whole ſanguiferous ſyſtem prevented the free actions of the veſſels, as is inferible from the increaſed frequency of the pulſe after veneſection, when it had been preternaturally ſlow previouſly to that operation. May we not aſcribe that amazing ſlowneſs of the pulſe, which occurred in the laſt ſtage of the diſeaſe, partly to an exhauſted ſtate of the excitability of the body from the exceſſive action of the powers wearing down that property? Bliſters very frequently at this time produced no effect, either in a general increaſe of arterial action, or of the veſſels over which they were immediately applied.

The irregular and intermitting pulſe may be referred to the different intenſity of action of the ſame cauſe. The latter is more generally obſervable in diſeaſes of the breaſt and head; and, as *Ferriar* and *Lieutaud* have remarked, it is ſometimes cauſed by affections of the heart itſelf. Many ſymptoms of the fever declared an undue accumulation of blood in the veſſels of the lungs, as well as of the brain. Theſe circumſtances could not fail of occaſioning great oppreſſion and interruption in the regular action of the heart and arteries. When we excite by any preternatural means the heart of a living animal, we obſerve it to contract with violence and rapidity, and then fall into a ſtate of relaxation and momentary torpor. May not ſomething ſimilar occur in the yellow fever, in which the ſtimulus applied to the heart is unuſually intenſe? This, aided by the vaſt puſh made upon it, by the too great accumulation of blood, will readily lead to irregularity and intermiſſions in its office. Thus I obſerved in one caſe, that when the circulation languiſhed

in the extreme veſſels, and an increaſed determination of blood occurred conſequently, in the larger veſſels, with augmented preſſure upon the heart, the intermiſſions of the pulſe became more unfrequent. But, when this accumulation was diminiſhed by a general diffuſion of the blood through the ſmalleſt veſſels over the body, this occurrence was leſs remarkable.

Excuſe, ſir, this digreſſion, into which I have been led unwarily: It is my buſineſs to ſtate facts; but to reaſon on them is at preſent unneceſſary.

Beſides theſe affections of the pulſe, the vital functions were deranged by

Hæmorrhages.

When the fever was uncontroled by medical aid, or treated improperly, the blood-veſſels were ruptured by the violent morbid action. In thoſe caſes alſo, which were not oppoſed with ſufficient force, even when the patients were reſcued from the grave, hæmorrhages would occur in a ſmall degree before the final criſis of the diſeaſe. The blood burſted more generally from the noſe; but it was poured forth alſo from the ears, mouth, bowels, and urinary bladder. A ſmall quantity was protruded from an inciſion in the arm by a lancet in one caſe, a conſiderable time after it had apparently healed.

I could never welcome hæmorrhages in the yellow fever as a favourable occurrence. They indicated the prevalence of exceſs of action in the arterial ſyſtem. In typhus fever they generally anticipate a happy termination of the diſeaſe—becauſe they do not appear, until an increaſe of action in the veſſels begins to indicate a return of healthy vigour. In the yellow fever, the hæmorrhages took place at various periods of time, according to its violence, and the mode in which it had been treated; and the blood loſt, though ſometimes ſmall, would, at other times, amount to a conſiderable quantity.

In this manner, ſir, were the ſufferings of the ſanguiferous ſyſtem indicated. Nor did the organs of reſpiration eſcape the general marks of derangement in the vital functions.

RESPIRATION was much impeded. It was hurried and laborious. As the coldneſs of the ſeaſon increaſed, the determination of the blood to the lungs became more obvious. Pains in the breaſt became more common; and a cough, with ſometimes expectoration of phlegm, more frequently accompanied the diſeaſe.

A morbid determination of blood to the *brain* was demonſtrated particularly by the ſuffuſion of the face, the redneſs of the eyes and dilatation of the pupils; by the hæmorrhages from the noſe and ears; by delirium, coma, or great drowſineſs, and by acute pains through different parts of the head.

The increaſed determination of the blood to the LUNGS, muſt have cauſed an accumulation in the veſſels of the brain. But whether actual inflammation or internal hæmorrhages occurred, I cannot determine. I regret extremely that no opportunities were offered to me, during the prevalence of the yellow fever, of examining by diſſection its effects upon the body. All my exertions to gratify this wiſh proved ineffectual. It would have been grateful to me to have diſcovered, what different appearances, different degrees of violence of the ſame diſeaſe were capable of inducing; to have added further teſtimony to the facts already given by others, or to have detected errors, if any ſuch exiſted.

The examination of bodies after death is very deſirable, becauſe it extends our knowledge of diſeaſe. Yet we ſhould beware of confiding too much in the appearances exhibited, ſince ſome important changes may not have been induced, but in the laſt ſtruggle of departing life. We ſhould endeavour to diſtinguiſh between the conſequences gradually occaſioned by the progreſs of diſeaſe, and the effects ſuddenly cauſed by the convulſive conflict with death. The former will teach the natural tendency of the diſeaſe, and thereby point out the means of obviating its fatal influence; but the latter by deluding the judgment, will lead us to anticipate events, which may not be always produced, even when death triumphs over the powers of nature or of medicine.

Until we have the means of removing this circumſtance beyond all controverſy, I am diſpoſed to believe with you, ſir, that an engorgement of the blood-veſſels of the brain is ſufficient to produce the ſymptoms deſcribed. Nor ſhould we be ſurpriſed, if we do not detect this cauſe by diſſection. For, beſides the obſervations of *Quin*, *Girdleſtone* and *Clark*, we well know, that even after death itſelf has occurred, the congeſtion of the blood-veſſels will diſappear. You have inſtanced the departure of the ſuffuſion of the face, which is a familiar demonſtration of the circumſtance. If we advert alſo to thoſe remedies, which moderate or remove the particular ſymptoms expreſſive of the affection of the brain, they will lead us to aſcribe them only to congeſtion.

When the contagion acted on the body, without inducing actual fever, it produced reſtleſſneſs and watching through ſeveral nights: and when fever had been formed, an obſtinate wakefulneſs attended many caſes, perhaps in a great meaſure from the exceſſive violence of pain. When the contagion or miaſmata acted with ſudden violence, it ſometimes induced ſyncope: But coma or drowſineſs more commonly marked the affection of the brain.

The *nerves* were not ſo much diſeaſed, as to occaſion, frequently, tremors or twitching of the tendons. They, in ſome caſes, acquired ſuch a morbid degree of ſenſibility, as to render the whole ſurface of the body ſore to the touch. Theſe caſes terminated fatally, but were alſo free from ſubſultus tendinum. Hiccup ſometimes occurred, and was in general premonitory of a fatal iſſue. *Sydenham* ſpeaks of it, as occurring after exceſſive vomiting: I remarked the truth of this obſervation in the yellow fever. The hiccup was ſometimes aggravated by very great flatulence of the ſtomach.

The pains accompanying the yellow fever were more or leſs acute in every caſe. They extended through the head, back, and knees. In one very violent inſtance, the former only was affected. In others, the head would be but ſlightly diſeaſed at the beginning of the fever, while the back and knees ſuffered

with excruciating torture. The pains were not always confined to the parts mentioned, but pervaded every part of the body—the arms and legs being included in their range.

The pain of the *head* was differently ſeated—in the eyes, in one or both temples, in the forehead, on the ſummit, and on the back of the head. It winded in one inſtance through the cartilage of the right ear. It ſometimes appeared to be fixed in the middle of the brain.

In the *back* it was generally confined to the lumbar vertebræ; but extended occaſionally through the ſacrum, and pierced forward through the bowels. In one caſe, the pain of the extremities was confined to one arm; in another, it was fixed only in one leg.

The torture from pain was in many inſtances exquiſitely acute. A gentleman declared in anguiſh, that the pain through his eyes "was enough to deprive him of his ſenſes:" and another confeſſed, that the pains in his legs were ſo acute, "that he could cry like a child." They often cauſed an inceſſant toſſing from one part of the bed to another, but this inquietude was increaſed by finding relief in no poſition. To gain a reſpite from it, required other means, to be hereafter mentioned.

The pains were not always fixed in the ſame places with invariable violence. I have frequently obſerved their abatement in one part ſucceeded by increaſed vehemence in another. Thoſe of the head and back appeared in ſeveral inſtances to alternate with each other. In the inſidious remiſſions of the fever, when the heat of the ſkin moderated,---I very ſeldom remarked a proportionable remiſſion of pain.

The *breaſt*, if debilitated by former attacks of diſeaſe, was always particularly affected with pain. But in the caſe of a gentleman, whoſe *liver* had been two or three times inflamed, I did not perceive that this viſcus ſuffered ſingularly from the yellow fever.

The *mind* ſuffered from delirium, but was ſometimes unaffected with this ſymptom through the whole courſe of the diſeaſe. I was informed of one unfortunate caſe, in which

mania prevailed ſo violently, that the patient eſcaped at night out of the window on the firſt floor. He was found again, and removed to a room upon the ſecond floor. He ſeized an opportunity on the ſucceeding night, and leaping through the window was killed by falling upon the pavement of the ſtreet. Another perſon eſcaped from his nurſe and roamed ſeveral hours through the woods expoſed to a hot ſun. A deep coma ſucceeded and ſoon terminated in death. A third perſon required ſeveral perſons, a few hours before he died, to reſtrain him from violence. He would counterfeit a wiſh to kiſs his wife, but as ſoon as he had an opportunity, he would make every effort to bite her; he endeavoured to treat thoſe around him in a ſimilar manner.

The memory failed more or leſs in ſeveral inſtances. One man totally forgot his own name. He was bled, and while the blood was flowing from his arm, he recollected his Chriſtian name: and before his arm was bound up, he recalled to mind his ſirname alſo. But the faculties and operations of the mind were not always ſubverted by the power of diſeaſe. An amazing depreſſion of ſpirits accompanied the fever; and you have noticed, ſir, a ſelf-deception with reſpect to the nature and danger of the diſeaſe. In numerous inſtances I was ſtruck with a ſimilar deluſion with reſpect to the violence of the moſt oppreſſive ſymptoms. Many perſons ſtrenuouſly denied the exiſtence of pain, eſpecially in the head; yet as the blood was flowing from the vein, they have burſt forth into an involuntary exclamation, "that the pain was gone," or that "a new head ſeemed to be placed upon their ſhoulders." I am very willing to aſcribe this ſtrange circumſtance to a derangement of the mind: for perſons of the moſt unſuſpected veracity were ſubject to its influence.---ADIEU!

LETTER V.

MY laſt letter, ſir, concluded with the ſymptoms expreſſing the derangement of the vital functions. It was requiſite to have included the organs as well as their offices. I will ſtill purſue the ſame plan; and leſt its proſecution ſhould become too tedious, I will endeavour to preſerve conciſeneſs, and at the ſame time to avoid obſcurity.

In the ANIMAL FUNCTIONS, we will compriſe the ſenſes and voluntary motions.

Symptoms in the Organs of Voluntary Motion.

The *muſcles* were affected with numbneſs or immobility in many inſtances. Occaſional ſpaſms were troubleſome, and in one caſe they were confined to the right ſide and right extremities. A difficulty of deglutition, apparently diſproportionate to the violence of the other ſymptoms, was frequently remarked. Fluids, inſtead of being ſwallowed, were often returned forcibly through the noſtrils.

While exceſſive debility accompanied ſome caſes, a morbid degree of ſtrength attended the laſt hours of others. A perſon, who had been almoſt unable to turn himſelf in his bed, required the exertions of ſeveral perſons to confine him to his room, a very few hours previouſly to his death. He eaſily overcame the ſtrength of an ordinary man, and walked about his chamber with all the apparent firmneſs of health, till within a very ſhort period from his laſt moment. A lady, who had ſuffered five days under a violent attack of the fever, aroſe from her bed, and with the utmoſt compoſure of mind walked about her chamber and made arrangements for her funeral, but half an hour before her eyes were cloſed for ever. I ſaw a young man, an hour before his death walking through his room: he had walked half a ſquare the ſame day. Among the caſes which came under my care, was one, in which ſtrength and reaſon remained almoſt unimpaired till the hour of its fatal termination.

The *ſpeech* was much affected in ſome. In one fatal inſtance, it was totally deſtroyed through its whole courſe.

The EXTERNAL SENSES and their organs ſuffered under the influence of this diſeaſe.

I have already remarked, that the whole ſurface of the body was ſometimes affected with acute ſoreneſs to the touch. I will take this opportunity of mentioning the different appearances of the SKIN. It was affected with eruptions of various kinds.

1. I obſerved a miliary raſh appear in one caſe on the third day.

2. A number of very ſmall red ſpots appeared, particularly on the arms, in ſome caſes during the exacerbations of the fever.

3. Blotches, ſuch as occur in ſcarlet fever, ſometimes covered the whole body.

4. A few large red blotches, covered with ſmall watery veſicles, appeared in a very mild caſe; they left the ſkin of a deep purple colour.

5. In a few favourable inſtances, there was an eruption about the mouth, ſimilar to that in common fevers. In ſome which terminated fatally, the lips were ſore and raw.

6. In a caſe, which occurred in October, under the form of an intermittent, an eruption of red itching blotches over the thighs preceded each acceſſion of fever, and diſappeared with the paroxyſms.

Among my own patients, I met with no inſtances of abſceſſes accompanying or ſucceeding the diſeaſe. But in ſome, who had not been bled, nor uſed the mercurial purges, I ſaw very troubleſome abſceſſes; one of which, was on the thigh. It was productive of immenſe pain and inconvenience from its great extent.

Rouppe, ſpeaking of the yellow fever, has remarked---"Qui vero vi morbi reſtiterint, et quintum aut ſeptimum diem attigerint, utplurimum furunculis vel puſtulis parvis rubris dolentibus, admodum difficile in ſuppurationem abeuntibus, variolarum confluentium adinſtar, fere in toto corpore tegebantur."

The ſkin, in the early ſtages of the diſeaſe, was exceſſively hot and dry---ſometimes moiſt.---In general, about the cloſe of the third day, it became preternaturally cool. In ſome inſtances this coolneſs of the ſkin continued through the whole progreſs of the diſeaſe. It was a very alarming ſymptom; yet it induced ſome to deny the exiſtence of fever or of danger, till death itſelf precluded every means of rectifying their miſtake.

The violence of the diſeaſe, and its mode of treatment, accelerated, retarded or prevented the yellowneſs of the ſkin. On the fourth or fifth day, this change of colour would appear about the neck and gradually extend over the whole body. *Curtin* ſays, it ſometimes attends the firſt attack of fever: I have ſeen it occur on the third, the ſecond and the firſt days in very violent caſes. *Bruce* remarks, that it does not appear in ſome inſtances before the ſeventh. I ſaw it even later than this. The yellowneſs occurred before death---yet it was not confined only to fatal terminations. Many, who recovered from violent attacks, were as yellow as thoſe who died. Others never bore this emblem of the fever. The body of one perſon, who recovered, was exceſſively yellow, while his *face* did not partake of the ſuffuſion. In another, it appeared and diſappeared ſeveral times on different parts of his body. In ſome inſtances, the ſkin was of a very light purple colour, as if it had been expoſed to great cold. Preſſure upon the ſkin cauſed this colour to diſappear, but inſtead of being ſucceeded by white as in health, a deep yellow was diſcovered.

The cauſe of the yellowneſs in this diſeaſe muſt be referred to an abſorption of the bile. This opinion is corroborated by an obſervation of *Moſeley*;—in the putrid bilious fever, the ſkin, which had become yellow, did not regain its natural colour, until a complete evacuation of the bile had been made from the inteſtinal canal.

It is to be regretted, that a more proper name than the *yellow* fever has not been given to this diſeaſe. Since this colour is not invariably an attendant upon it, and ſince it is not peculiarly confined to it alone. It is well known, that many recover

without it; and *Lind* mentions its occurrence in ſome caſes of typhus; *Laſonne*, in the Medical Commentaries, ſometimes obſerved it in a diſeaſe occaſioned by putrid cattle, and every author has remarked its occaſional attendance on the uſual autumnal diſeaſes.

After death, I obſerved the ſkin appear livid in ſome places, particularly about the ſhoulders and neck.

The EYES were greatly inflamed in the yellow fever, and the eyelids half-cloſed. This laſt circumſtance was ſomewhat peculiarly characteriſtic of the diſeaſe. It gave the countenance an expreſſion of diſtreſs. The light was intolerable in ſome inſtances, but ſeemed to excite no ſenſible anxiety in others. Yet the patients, even when they ſaid, they felt no inconvenience from the light, appeared, as if inſtinctively to avoid it by varying the poſitions of their head. After an uncertain time, the eyes became yellow previouſly to the ſkin. The *ſight* ſuffered often from dizzineſs, and was ſometimes much impaired and dull. I knew no inſtance of its deſtruction.

The *hearing* was frequently impaired; and one perſon who was conſiderably deaf in health, heard much more imperfectly during his fever.

The *taſte* was frequently very much vitiated. A total diſreliſh to ſugar occurred in one inſtance. A reliſh for chewing tobacco during the exacerbations of fever was remarkable in one caſe. This weed, as is uſual in febrile diſeaſes, was generally diſagreeable in the preſent one. I obſerved only the inſtance mentioned, and another in which great quantities of ſnuff were uſed.

Let us now, ſir, take a view of the NATURAL FUNCTIONS, as including digeſtion, ſecretion and excretion.

In noting DIGESTION, we are naturally led to remark the affection of the

Alimentary Canal.

The *ſtomach* was often affected, ſeveral days before the occurrence of fever, with a ſenſation of heat, or fulneſs, or

nauſea. The latter was aggravated at the commencement of the diſeaſe, and vomiting, eſpecially if it had been uſhered in by a chilly fit, accompanied its attack. The contents of the ſtomach, if food had been recently taken, would be rejected, and drinks would be returned, as ſoon as ſwallowed. A quantity of viſcid mucus, and ſometimes bile alſo would be thrown up by vomiting. Although the vomiting had not accompanied the firſt ſymptoms of fever, yet it would appear at ſome future period of the diſeaſe. When it occurred about the termination of the third day, it augured either a fatal termination, or a very violent and dangerous caſe. The burning heat of the ſtomach became about this time more general. It was attended with great anxiety and proved very diſtreſſing to the patient. It was always a harbinger of danger. During the laſt hours of the fever, the fluid diſcharged from the ſtomach, was dark or black. This was thrown up frequently without any previous or ſubſequent nauſea. In ſome inſtances, the vomiting of this matter did not take place, till the moment of death, when a great quantity would be ſuddenly diſcharged. In moſt inſtances of the diſeaſe, the ſtomach was ſo very irritable, as to reject every fluid almoſt as ſoon as it was ſwallowed.

When the diſeaſe aſſumed an intermitting form, and more particularly after the weather had become more cold, a vomiting would return with the fever and continue till the cloſe of the fit. It yielded only to the remedies employed in the more obvious and violent forms of the diſeaſe.

A flatulency of the ſtomach was a very common and diſtreſſing ſymptom. Worms ſometimes eſcaped through the mouth; nor was the ſtomach always free from hæmorrhagy.

The *bowels* were but in two inſtances, within my knowledge, affected with diarrhœa at the commencement of the diſeaſe. A coſtiveneſs preceded the attack of fever, and attended through its courſe. The bowels were affected with ſo much torpor, as frequently to require the moſt powerful medicines to procure any evacuation from them. A flatulency of theſe organs was more rare than that of the ſtomach.

A dull pain ſometimes occurred in the lower part of the belly; but that which extended in ſome caſes from the back through the bowels was ſevere, till *worms* were diſcharged. Thus *Pringle* obſerves on the remittent fever—" the men, who are troubled with worms, have more obſtinate gripings or ſickneſs at ſtomach." Symptoms of dyſentery ſometimes attended the diſeaſe.

Under theſe circumſtances of the alimentary canal, we muſt readily ſuppoſe that the digeſtive powers could no longer act. Indeed the total deſtruction of the appetite for food was very remarkable in the yellow fever; nor did it return in the leaſt degree during its remiſſions. It marked ſo well the violence and danger of the fever, that a return of appetite for food proved the moſt certain ſign of a favourable iſſue; nor could the patient be ever declared out of danger, while the total diſreliſh to food continued, notwithſtanding the preſence of other ſymptoms apparently favourable.—The *thirſt* was exceſſive in ſome inſtances; but in general it was moderate, and ſometimes abſent. When preſent, cold water was much deſired; and acid drinks, ſuch as lemonade, were grateful.

Secretions and Excretions.

Lining has obſerved that the ſtools in the yellow fever are rarely bilious; and *Blane* ſays, there is no increaſed ſecretion of bile in this diſeaſe. Their remarks are juſt; for unleſs promoted by medical aid, the *bile* was not always diſcharged in an unuſual quantity.

Its quantity, quality, and colour varied much. In the courſe of the diſeaſe an immenſe quantity might be diſcharged by emetic and purgative medicines. The bile was ſometimes ſo acrid as to excoriate the rectum. That which was vomited on the firſt day, was yellow or green, or a mixture of both. In ſome few inſtances it was black. I have already remarked, that it was ſometimes mixed with a firm viſcid phlegm: and that about the fourth day, or earlier, if the diſeaſe was very violent, a dark

fluid, reſembling ſtrong coffee and its grounds, would be thrown from the ſtomach; and as the vehemence of the ſymptoms approached nearer to death, the matter would become more black. It was free from odour and generally free from taſte; but in one inſtance it was intolerably *bitter*. I am induced therefore to believe it to be a vitiated ſtate, or very imperfect ſecretion of the *bile*. It often ſucceeded a vomiting of green or yellow bile; but I never diſcovered, that it was mixed with either. Were it not a vitiated ſtate of this fluid, why do we not detect the uſually coloured bile at the ſame time? The diſcharges from the bowels alſo are of the ſame nature; and after the vomiting has ceaſed, enemas have brought away, for two or three days, the ſame coloured matter, which has at length been ſucceeded by evacuations of a natural colour.

The treatment of the diſeaſe gave variety to the quantity, quality, and colour of the *fæces*. They were ſometimes very copious and not very frequent: ſometimes ſmall, and occurring every half hour. They were yellow or green, or black, or mixed with blood; ſometimes extremely fœtid—ſometimes free from odour.

The *urine* was very high-coloured and yellow, except in two caſes, in which it was limpid. It depoſited a copious ſediment, even in the exacerbations of fever. In many inſtances there was a ſuppreſſion of urine from the firſt hour of the diſeaſe to its generally fatal cloſe. *Sydenham*, if I do not err, has mentioned this ſymptom, as occurring in the malignant ſmall-pox. The quantity of urine diſcharged varied very much. *Lining* remarked, that before the third day, it was very conſiderable, but afterwards ſmall in quantity.

Sweats ſeldom appeared in the yellow fever. This diſeaſe did not tend, like the common remitting fever, to a criſis by diſcharges from the ſkin. In many inſtances this excretion was copious during the firſt day, but did not afford relief, unleſs very large quantities had been diſcharged. In general, the ſkin was obſtinately dry, and reſiſted the powers of that claſs of medicines denominated ſudorifics. When ſweat appeared, it

was either ſpontaneous, or excited by particular means to be hereafter mentioned. The fluid diſcharged from the ſkin was very frequently yellow, not only during the fever, but even before its formation. The ſweat in many inſtances emitted a moſt diſagreeable fætor.

Mucus in ſome caſes was diſcharged in conſiderable quantities from the fauces. It cauſed a conſtant hawking particularly in one caſe, which terminated fatally. In another it was diſcharged largely and very yellow, from the noſe.

The *ſaliva* was in one inſtance remarkably yellow. *Pringle* has mentioned the ſame circumſtance. The tongue was almoſt without exception *moiſt*, of its natural colour, but more frequently whitiſh. It was ſometimes white in the firſt ſtage of the diſeaſe, and afterwards became ſmooth and red. The reverſe alſo was obſervable. In two inſtances the tongue was yellow and dry at the firſt attack of the diſeaſe, but was occaſionally moiſt, and became leſs yellow as the fever advanced. Towards the cloſe of a few caſes, it became dry and ſwoln: the latter ſymptom, as well as the yellowneſs, expreſſed the greateſt danger. The tongue in a caſe, which ended in health, was very dark coloured but moiſt. Towards the laſt ſtage of the diſeaſe, a ſmall dry ſtreak was ſometimes obſervable down the middle of the tongue.

Before we take our leave of the glandular ſyſtem, I may remark, that the *liver* never appeared to me particularly affected with inflammation. I diſcovered in moſt caſes a ſoreneſs to the touch about the region of the ſtomach; but I never obſerved any further uneaſineſs on preſſure, nor any enlargement of the liver, as is uſual in inflammatory affections of this viſcus. The patients reclined with equal eaſe on either ſide, or upon the back. *Moſeley* informs us, that the yellow fever never terminates in hepatitis or ſuppuration of the liver. Indeed, inſtead of the uncommon determination of blood, which we might have expected to this part, the reverſe ſeems really to occur. The liver did not diſcharge its uſual offices, nor afford that great relief, which its functions, when properly performed, are capable of confer-

ring. This great ſluggiſhneſs, in the diſcharge of its duty, led to ſome particular views in the exhibition of medicine, which I ſhall notice in another place.---The parotid glands, and thoſe ſeated about the root of the tongue, were frequently diſordered.

You have mentioned a caſe, in which the whole diſeaſe ſeemed to be concentrated in the lymphatic ſyſtem. *Pringle* alſo on jail or hoſpital fever, gives an inſtance in which the parotids were ſwelled---but as ſoon as the tumors ſubſided by means of diſcutient cataplaſms, the patient was ſeized with the malignant fever. In the inſtances of yellow fever, which came under my obſervation, I did not remark any particular affection of the lymphatic ſyſtem.

Let us dwell a moment upon the ſource of the various ſecretions and excretions. The *blood*, when drawn from a vein, exhibited different appearances.

1. The ſerum was always yellow; the craſſamentum was never diſſolved.

2. The craſſamentum was covered with a thick buffy coat, cup-formed and floating in a large quantity of ſerum. In theſe caſes, the inflammatory action was exceſſively great and portended the greateſt danger.

3. The craſſamentum was very firm, but not ſizy, and did not float upon the ſerum.

4. The craſſamentum fell to the bottom of the bowl---and was not very firm: the ſerum reſembled water, in which meat had been waſhed.—In theſe caſes, bleeding produced a good effect more ſpeedily, and this appearance of the blood promiſed a favourable iſſue from the fever.

5. The blood did not ſeparate into ſerum and craſſamentum. A quantity of lymph exceſſively yellow floated on the top of the red globules, till it coagulated. The whole congealed into a ſolid maſs. The gluten when ſeparated from the other part, required force to tear it aſunder. There was no appearance of ſerum, and the maſs reſiſted putrefaction much longer than blood of its uſual appearance.

This kind was always obſerved in the laſt ſtage of the fever, particularly if bleeding had not been previouſly uſed: it denoted a fatal termination of the diſeaſe.

6. The blood, while flowing from the vein, looked very dark---frequently reſembling treacle. Sometimes before the ſtream was ſtopped, it began to aſſume a more florid appearance. In ſome inſtances it was ſo hot, that the patients complained of its ſcalding their arms.

7. After expoſure to the air, it ſoon loſt its black colour and became florid---except when it exhibited the appearance of No. 5. in which the buffy coat excluded the action of the atmoſphere.

Such, ſir, were the ſymptoms appearing in the yellow fever, as they came under my own obſervation. I have mentioned none, which are not expreſſed in ſome one of the numerous caſes, which I committed minutely to paper at the bedſide of the ſick.

From a view of the preceding pages, how juſt muſt that obſervation of Dr. *Moſeley* appear---that "the diſeaſe is in the higheſt degree poſſible an inflammatory one, accompanied with ſuch ſymptoms in a greater extent as attend all inflammatory fevers."

Some changes were induced in the ſymptoms of the yellow fever by the variation of the weather. It ſpread more rapidly during the prevalence of great heat, nor was its courſe checked by the frequent ſhowers of rain. They were accompanied by a ſouth and ſouth-eaſt wind, which rendered the air more ſultry and moiſt. Much was expected from cold: but when the wind veered to the weſt and north-weſt, about the month of September, it had no ſuch deſired effect. The ſymptoms of thoſe who were ſick, were increaſed in malignity, and fatality; nor did the diſeaſe appear to be leſs generally communicable. It required the intenſity of froſts to impede and arreſt its progreſs.

During the prevalence of very hot weather, the fever ran more ſpeedily to death: the pulſe was more frequent and ſmall: and in the moſt violent inſtances the pains were leſs ſenſibly felt and general. The diſeaſe yielded now more readily to its proper mode of treatment, than when the ſeaſon was more advanced.

They, who were attacked, during the prevalence of cold weather, had their caſes longer protracted. The pulſe was ſlower and more full: the pains more general, and acute; and they inclined more readily to ſweat. Spontaneous vomiting was leſs frequent, and the ſtomach was leſs irritable. The blood was determined more forcibly to the head, as the general dilatation of the pupils indicated; and alſo to the lungs, as was inferible from the occurrence of a cough. ADIEU.

LETTER VI.

I will now proceed, ſir, to mention that *Mode* of *Cure* to which the yellow fever ſubmitted.

The clouds, which have ſo long obſcured the pathology of this diſeaſe, have begun to diſappear; and humanity will have leſs to deplore from its future ravages. The miſtaken notions of its nature, like the ſword, have thinned the ranks of man; but as they have been ſo ably expoſed by others, it will be unneceſſary for me to add another comment on the ſubject. He, who preſcribes for ſymptoms and not for names of diſeaſes, needs only to review the catalogue already given, to regulate the exhibition of ſuch medicines, as reduce inflammatory action. Among theſe he will have recourſe to

Purges.

We have remarked, that in the yellow fever the bowels are invaded by uncommon torpor, and are obſtinately coſtive. The offices of the liver ſeemed to be ſomehow ſuſpended, and did not afford, by an increaſed ſecretion of bile, that relief to the body which it frequently does in other diſeaſes. The anxiety and pain of dyſentery is mitigated by copious diſcharges of bile. I have cured tertian intermittents only by ſoliciting an increaſed evacuation from the liver: and *Cleghorn* informs us, that evacuations of bile in tertians are always attended with a happy effect.

In the remitting fever, *Donald Monro* remarks the occurrence of thin diſcharges to be accompanied with every advantage: and *Pringle* aſſerts, that no natural evacuation, except a cholera morbus, makes a ſudden cure of a remittent. Theſe facts lead us to expect equal good from increaſing the excretion of bile in the yellow fever. But we muſt not depend ſolely upon chance or nature to effect this event.

I have long obſerved the ſuperior efficacy of mercurial purges over thoſe of any other kind in bilious diſeaſes. *Blane* found five or ten grains of calomel ſucceed in evacuating bile, when other purges had failed in this effect. Mercury not only cleanſes the bowels, but acts alſo powerfully over the whole glandular ſyſtem, and cauſes a diaphoreſis when other medicines have proved ineffectual in opening the ſkin. It ſeemed therefore excellently adapted in combating the yellow fever: and a ſoreneſs of the gums, or a gentle ſalivation, gave me pleaſure on their appearance, as the firſt tokens of the impregnated ſtate of the body. The good effects of ſuch a circumſtance have been noticed by *Wade* and *Chiſholm:* the former gentleman loſt no patient, and the latter but one out of a very great number, in whom the mercury cauſed a ſalivation. You alſo, ſir, have added another teſtimony to theirs, by informing us, that you loſt but one perſon in whom a ptyaliſm occurred; and out of many who came under my obſervation,---I know not an exception to their recovery from diſeaſe.

To give ſmall doſes of a purgative medicine in the yellow fever, is to diminiſh the probability of a cure by loſing time. Their effects, if they produce any, will be of very little conſequence. If evacuations be too ſparingly made, ſays *Pringle*, a bilious remittent will become continued. "As a purge, ſays Dr. *George Davidſon*, of St. Vincents, calomel has been uſed with the greateſt advantage, ſometimes by itſelf, but more frequently combined with ſome active purgative medicines, ſuch as jalap. From ſome peculiarity in the yellow fever, an uncommon quantity of the calomel is neceſſary to affect the bowels and ſalivary glands. As I found a ſmall quantity of it did not produce the

effect I wiſhed for promptly, I have gradually increaſed the quantity, until I now venture to give ten grains of it combined with five of jalap every two hours, until ſtools are procured. The calomel is then given by itſelf." There are many other teſtimonies in favour of large doſes of purging medicines, to remove any childiſh fears in their exhibition. *Pringle* gave, to diſcharge the worms in the remitting fever, half a drachm of rhubarb and twelve grains of calomel, and repeated it when neceſſary.*---The great *Sydenham*† uſed to adminiſter twenty grains of ſweet mercury in a doſe, either alone or combined with other purgatives.---*Chiſholm* has given an hundred and fifty grains of calomel in one caſe with every advantage: and you have adduced irrefragable proofs of the utility of a ſimilar practice.

At the firſt appearance of the fever I combined jalap with calomel, giving each in a ſmall doſe of eight or ten grains: They were repeated every five or ſix hours, until the bowels were freely opened. From four or five ſuch doſes, exhibited during the two or three firſt days, I did not obſerve an inſtance of ſalivation: and although frequent evacuations from the bowels occurred, yet they were ſmall, and brought with them but very trifling relief. The patients were haraſſed by repeated calls to the cloſe-ſtool, and the neceſſary exertions on theſe occaſions, weakened them more than the diſcharges with which they were attended. This circumſtance, together with the reflection that I always failed in my endeavours to excite a ſalivation after the third day in violent caſes, by means of the ointment and ſmall quantities of mercury, determined me to increaſe the quantity of each doſe from the firſt hours of the diſeaſe. Fifteen or ſixteen grains of calomel ſtill combined with the jalap flattered my hopes, by the increaſed advantages obviouſly following their adminiſtration. The evacuations from the bowels were *leſs* frequent and haraſſing to the ſick, than when ſmaller doſes had been given, but being much more copious, they were accompanied with ſpeedier and more ſenſible relief.

* Pages 217—219. † Pages 360—562 of Wallis's editi on

Yet a ſalivation ſcarcely ever occurred. The jalap ſeemed to carry the calomel too quickly through the bowels. I therefore omitted it entirely, and gave the mercury alone, in doſes of twenty grains every four or ſix hours, until two or three copious diſcharges were produced. If one doſe of this medicine acted, it ſeldom operated more frequently than twice. But in ſeveral inſtances, the bowels were not affected by a ſingle doſe. Forty grains of calomel were taken in two parts in twelve hours, and acted only twice. The addition of twenty more grains ſcarcely increaſed the evacuations beyond their natural quantity. In another caſe, thirty-ſix grains of calomel operated but twice; thirty more grains required the aſſiſtance of caſtor oil to produce another diſcharge. In another violent caſe, forty grains in two doſes, one taken at nine o'clock in the morning, the other at three in the afternoon, produced but three ſtools: another ſcruple was now given, which operated once or twice more. Theſe are a few of many inſtances of a ſimilar nature, which might be advanced in ſupport of the happy effects of large quantities of mercury. I was by no means ſingular in this mode of practice. Several phyſicians were ſoon convinced of the neceſſity of them, and immediately adopted their uſe, to the great advantage of their patients.

Theſe uncombined doſes of calomel ſoon excited a *gentle* ſalivation. As ſoon as this occurred, I had recourſe to other kinds of purgatives to open the bowels two or three times daily: caſtor oil, ſmall doſes of Glauber's ſalts and cremor tartar, but more eſpecially emollient enemas produced the deſired effect.

The preſcribers of large doſes of calomel could not eſcape the cenſure and malicious obliquy of ſome few phyſicians. They aſſerted that they plunged the body into a dangerous or a fatal debility.

When does death enſue from mere debility? But were the allegation juſt, does it follow, that large doſes would produce this effect ſooner than ſmaller? Was this the caſe? No---it was not. Small doſes of calomel, or rather purgative medicines---if they acted on the bowels at all,---irritated them to

very frequent but very ſmall diſcharges of their contents. But the exceſſive weakneſs, which ſometimes followed theſe circumſtances, is very erroneouſly aſcribed to the quantity evacuated. The conſtant or frequently repeated exertions attending the diſcharges, haraſſed and wore down the ſick. The ſmall quantity evacuated, never brought with it relief, never removed the morbid oppreſſion, but exhauſted the powers of the patient in ſo often obeying the ſummons to the cloſe-ſtool.

Does *Hillary* aſcribe death to the great evacuations in diarrhœa, in which fifteen or twenty ſtools have occurred daily through ſeveral ſucceſſive weeks? Does *Clark* attribute death in dyſentery to the diſcharges from the bowels? *Moſeley* mentions a putrid bilious fever, which prevailed in the army at Jamaica. No man recovered if he had been treated with bark and cordial medicines. He reaſoned on the diſeaſe, and ſuſpected the mortality to ariſe from a dread of evacuations in its commencement, leſt they ſhould induce a fatal debility. He had recourſe to purges---"but ſo far was the reſult of the apprehenſion from being confirmed by the event, that it was found, that the men acquired ſtrength in proportion as they were diluted and purged." Every patient who was thus treated, was reſcued from the grave---although "many had twenty ſtools a day for three days ſucceſſively." You remember the caſe of a gentleman, mentioned by *Kirkland* in his treatiſe on the inflammatory rheumatiſm, in whom a purge occaſioned more than forty ſtools: he did not ſink under its operation and die, but roſe from them, freed from a rheumatic affection, which had diſtreſſed him ſixteen or eighteen weeks. Mr. *Ogle*, a drayman, who was attacked with the yellow fever on the fourth of October, owes his life in a great degree to more than fourteen ſtools, produced the firſt day by eighteen grains of calomel and twenty of jalap, adminiſtered by that judicious ſtudent of medicine, Mr. J. A. Morton.

When large doſes of calomel were given, the evacuations from the bowels were very copious and few. The exertions of the patient were more than compenſated by the diſcharges which required them; the oppreſſion was removed and he felt

revived. I never ſaw a caſe, in which fifty or ſixty grains of mercury had been given in three doſes, accompanied with one-half of that ſenſe of immenſe weakneſs which attended the exhibition of fifteen or twenty grains divided into three or four parts.

In my own practice I obſerved the exceſſive debility, or rather oppreſſive weakneſs, which followed the uſe of trifling purgatives; but when I reaſoned on its cauſe, I could not aſcribe it to the evacuations they produced. The adminiſtration of large doſes of calomel and the invariable benefit reſulting from their admiſſion, proved inconteſtably the error of the charge aimed againſt them.

It was aſſerted alſo, that incurable ulcers muſt ſucceed the uſe of ſo much mercury.—This charge ſerved only to eſtabliſh the ignorance of its aſſerters. Such a circumſtance never followed the exhibition of even ſeveral ſcruples of mercury. In no inſtance was the application of bliſters ſucceeded by ulcers or mortification, but they healed as rapidly as if the body had enjoyed perfect health. One of my patients had been long afflicted with a large ulcer on his leg; and during his attack of violent fever, I ſaw it black and apparently ſphacelated. He took ſeveral large doſes of calomel and ſpeedily recovered. The ulcer immediately aſſumed a healthy appearance, and although it had hitherto baffled all his care for ſeveral preceding months, it now ſpeedily diſappeared.

Whether, upon common occaſions, we adminiſter mercury in ſmall divided portions, or in large doſes frequently repeated, we produce the ſame event. The body becomes impregnated with its properties, and a ſalivation enſues. Why then ſhould we not expect the formation of ulcers with equal propriety in both caſes?

Could the weak charges that have been mentioned, have been juſt, why have we not obſerved ulcers following the very extenſive uſe of mercury in the cure of cynanche trachealis? Why do they not ſucceed a ſalivation of ſome weeks continuance in lues venerea?

Dr. Clark aſſures us that, in the adminiſtration of mercury in dyſentery, he " was thoroughly perſuaded, that it is poſſeſſed of powers to remove inflammation and *ulceration* of the inteſtines, which are the chief cauſes of death in this diſtemper." But why do not ulcers attend the uſe of mercury in inflammation of the liver; and how does it happen that when ſalivation was excited in the yellow fever, it quickly ceaſed after the medicine was omitted, and the gums again acquired their healthy firmneſs? But to what ſupernatural power ſhall we fly to explain, why the ulcer in the ſick man's leg changed its ſphacelated form, aſſumed a healthy appearance in ſo ſhort a time, when he had taken fifty grains of calomel in two days?

But calomel, it is ſaid, will cauſe dropſies alſo! Why did not this diſeaſe ſucceed thoſe caſes of fever, which were oppoſed by large doſes of that medicine? I ſaw but two inſtances of œdema about the feet, ſucceed the fever, and in theſe it quickly ceaſed to appear. We might expected it more frequently, when we reflect, that this affection ſo generally follows pleuriſy, ſcarlatina and puerperal fever.

But ſuch doſes, it was ſaid, of calomel were too violent purgatives. It was forgotten, or not known, that the uncommon torpor of the bowels required violent means to remove it. But if the quantities had been too ſevere, why were they not followed by hæmorrhages from the bowels, which ſo generally occurred when the fever was not oppoſed? In one caſe only I obſerved ſtreaks of blood in the ſtools; but in this inſtance, only one ſmall doſe of calomel had been given on the firſt day, and Glauber's ſalts and cremor tartar, or caſtor oil had been afterwards adminiſtered in ſmall quantities. The bile itſelf was ſometimes ſo acrid as to excoriate the rectum, but this took place alſo when no mercury had been uſed. I have obſerved this circumſtance to occur in common remittents, to ſuch a degree as totally to prevent the introduction of a gliſter pipe. Dr. *Huck* remarked the ſame circumſtance in the yellow fever from the natural evacuations of the bile. But are not the bowels much more irritated in dyſentery than in the yellow fever, and does

not calomel produce happy effects in that diſeaſe? We muſt doubt our own ſenſes, or the authority of *Cleghorn*, *Clark* and *Pringle*, before we refuſe to admit this truth.

The weakeſt conſtitutions were not injured by large doſes of calomel. Delicate girls and women derived advantages from it, equally with robuſt men. The life of an infant, ſcarcely five months old, was preſerved by taking frequently five or ſix grains of calomel in a doſe.

I would not have conſumed an inſtant, ſir, in dwelling upon the preceding objections to the uſe of calomel, were it not to point out ſome portion of the ignorance and error with which all improvements in medicine have to contend. Our ſcience finds in its progreſs greater obſtacles, from the contracted views of ſome phyſicians, than Hannibal encountered in his paſſage over the Alps.

The *effects* of the calomel purges in the yellow fever were great and obvious. Their operation was aſſiſted, and perhaps ſometimes varied by the bleedings uſed at the ſame time.

1. In ſome inſtances, the mercurial purges, in two or three hours, produced ſenſations of needles darting through the whole body. Theſe laſted but a moment and were generally ſucceeded by an univerſal ſweat.

2. The firſt doſe often excited vomiting two or three times; but being attended with very little nauſea or retching, it proved a more ſafe and leſs irritating emetic than the preparations of antimony, and vomited, only when there appeared to have been an accumulation of bile.

3. The large doſes produced but few diſcharges from the bowels: they were very copious however, and attended with great relief to the ſick.

4. By removing exceſs of ſtimulus and immenſe oppreſſion, they revived the patient, and gave him an increaſe of ſtrength.

5. When the pulſe was very frequent and low, the copious evacuations from the bowels were followed by increaſed fulneſs and diminiſhed frequency of the pulſe. And when it was pre-

ternaturally flow, they raiſed it to a more natural degree of frequency.

6. They moderated the violence of the fever, removed the pains eſpecially from the back, and obviated the return of ſevere exacerbations. Hence, they alone were frequently ſufficient to arreſt the progreſs of the diſeaſe.

7. They cauſed the vomiting to ceaſe when it accompanied the commencement of the fever: and very often, ſmall doſes of calomel repeated every one or two hours, prevented the return of the vomiting of coffee-grounds, even after they had made their appearance.

8. By means of large doſes, the whole ſyſtem was ſoon impregnated with mercury, and the various glands reſumed their ſuſpended functions. The general diffuſion of this medicine through the body was announced by a tenderneſs of the gums. I ſaw no caſe terminate fatally after the occurrence of a ſalivation, however violent they had previouſly been. *Huxham* remarks the importance of ſuch an occurrence in his ſlow nervous fever.---"There is no evacuation, ſays he, of more favourable portent, than a pretty free ſalivation without aphthæ."

9. I aſcribe to the free uſe of mercury, the eſcape of the lymphatic ſyſtem from participating more commonly with the diſeaſe;---and to the large evacuations of bile, the non-occurrence of yellowneſs of the ſkin in many caſes, which ended in health.

The times of adminiſtering the mercurial purges were regulated by no particular circumſtance of the fever. They were given as early as poſſible in the diſeaſe, and repeated every four or ſix hours, without regard to remiſſions or exacerbations, until the deſired effect was obtained. The ſooner the bowels were well opened, the greater was the proſpect of recovery: and when a ſalivation was excited, it was requiſite to procure at leaſt three ſtools daily, by caſtor oil or by glyſters; but of theſe laſt we will ſpeak hereafter. This prevention was very neceſſary, for the lapſe of a few hours without an evacuation, was fre-

quently followed by great anxiety, an increaſe or return of pain, or by vomiting.

I ſhall now cloſe this long letter by again bidding you ADIEU.

(To be continued.)

Obſervations on Chorea Sancti Viti, extracted from a Letter of Dr. GEORGE WILLIAMSON, *to the* EDITOR, *dated Baltimore, Sept.* 6, 1804.

"I FLATTER myſelf thou wilt excuſe the liberty I am about to take, in preſenting thee a few obſervations on Chorea Sancti Viti. This liberty I ſhould not have taken, had I not ſeen thy remarks on the ſubject in the laſt number of the Medical Repoſitory.—On reading thoſe obſervations, it immediately occurred to me, that during my practice in Queen Ann county, eaſtern ſhore of Maryland, a caſe came under my care which might ſerve to confirm thy theory, of that diſeaſe being a ſymptomatic affection; but whether it may not be a ſymptomatic affection of ſome other diſeaſe, as well as of hydrocephalus is queſtionable with me. On examining my note-book, I am ſorry to find I was not as particular in my obſervations as I ought to have been; I will, however, proceed to relate the caſe as it there ſtands.

"In the 9th month (Sept.) 1803, I was called to ſee a child about four years old, who had laboured under the intermitting fever for ſome days: his father was much alarmed, and ſaid, his child, the day before, was taken with violent fits, which were almoſt continually on it; and which would ſoon terminate its exiſtence provided relief could not ſpeedily be procured.--- I immediately went to ſee his boy, and found him curiouſly affected indeed! his pulſe was regular, his eyes dull and languid, he was ſpeechleſs, and appeared almoſt ſenſeleſs:---

his little frame was agitated in the moſt extraordinary manner imaginable; ſometimes, almoſt the whole frame; at other times, not more than one limb, as an arm or leg---ſometimes his tongue only would be affected, then his eyes: his breaſt and upper ſide were moſt affected; in fact, the ſide he laid on was never convulſed. Having never ſeen ſuch a caſe, and not recollecting to have read of a ſimilar one, I was at firſt, at a loſs what to do; I, however, ſoon reſolved on trying a bliſter, and accordingly applied one to the back of his neck, which drew remarkably well, and had a very happy effect. I gave no internal medicine except a little ſaline mixture. When I called the next morning the child was brave, could talk, knew his relations, eat a hearty breakfaſt, and no diſeaſe appeared to be remaining, except a ſlight fever, for which I continued the ſaline mixture.---I heard of him a few days after, when he was well and running about.---Whether this child was or was not afflicted with the hydrocephalus, I ſhall not pretend to determine; but might I hazard a conjecture from the ſtate of his pulſe and eyes; an obtuſe pain in his head, which, (if my memory ſerves me) his parents told me he complained of ſome days before; and alſo from his idiotic appearance, I ſhould ſuppoſe it probable he was.——Thou haſt juſtly ſaid 'Man is not the only animal ſubject to the chorea.' Thy mentioning the caſe of thy dog to prove the fact, brings to my memory a ſimilar one, in a dog of my father's.---When he was a pup he had the *diſtemper* very bad, and was ever afterwards troubled with the chorea: the firſt attack was violent, but as he grew up it became ſlighter. Let him be in what poſition he might, his frame was continually agitated; ſo much ſo, that it would have been utterly impoſſible for him to have ſtood ſtill one minute: he was ſo univerſally affected that his barking was not natural."

Account of an Albino. *By* JOHN REDMAN COXE, M. D.

ON the 6th of February 1800, a man ſtopped at my door to ſolicit charity. He leaned upon a ſtaff;---and appeared to diſtinguiſh objects with ſo much difficulty, that I was deſirous to aſcertain the cauſe. I accordingly took him into the houſe, and upon examination, found he exhibited the marks of an Albino.---The hair of his head was of a tranſparent white, not in the leaſt reſembling the grey hair from age. His eyebrows and eye-laſhes were of the ſame appearance, as was likewiſe his beard. The ſkin of his head beneath the hair, ſeemed to approach to a light pink colour, and the ſkin, wherever I had an opportunity of ſeeing it, was of a very light hue. He had not much hair on his body; but the uſual quantity, or perhaps an exceſs, on his legs and thighs, and of the ſame colour with that on his head.

His mouth and noſe were large; his eyes deep ſunk in their ſockets; the openings of the lids, ſmall, and the eye with difficulty diſcovered, without elevating the lid. The pupils appeared of a light roſe colour, the iris of a light grey. The tunica conjunctiva of its natural colour, but appearing to have a greater number of blood-veſſels than is common towards the external canthus; this probably aroſe from his being frequently ſubject to ſore eyes, eſpecially after walking in the wind.

He ſays he is much more ſenſibly affected by cold than by heat. The pulſe in both wriſts beat about eighty in a minute. He is very ſubject to an hemorrhage from the noſe, often eight and nine times a day, and coming on without even the action of blowing.

He had a ſlight tremor of the head, which he ſaid had been the caſe from his birth; and he is occaſionally ſubject to cramps in his fingers and legs, and conſiderable weakneſs of his arms.

He is about ſix feet in height, and not luſty. Sleeps well, and ſays his viſion is moſt diſtinct about the duſk of the evening, when he ſees tolerably well. His appetite is generally

good, though he is frequently attacked with a vomiting of green or yellow bile. For theſe laſt ſix months this had occurred nearly weekly. His bowels are regular, and his urine natural in quantity and appearance; reſpiration perfectly good.

The account which he gave me of himſelf, was, that his name is Joſeph Kearſley, and that he is twenty-five years of age;---that he was born at the Northampton iron-works in Maryland.---His father was a waggoner, of a brown complexion, and employed about the iron-works. He married one Jane Paul, who bore him five children; he, Joſeph, and his brother William being the eldeſt, and twins.---William was affected in a ſimilar way in every reſpect as Joſeph.---Then came three girls at ſeparate births;---the eldeſt of whom ſaw perfectly diſtinct. She had ſandy hair, and died young after a week's illneſs. The two other ſiſters ſaw rather better than either him or his brother, but their eyes were red, though leſs ſenſible to the light.---They both had brown hair, and died, one at four years of age, the other at two.

Joſeph, the ſubject of the preſent paper, was the youngeſt twin brother. When boys they employed themſelves in digging the ore and ſhoveling dirt;---earning a guinea a month, when about eleven or twelve years of age. Their eyes were red from their birth, and, like their two youngeſt ſiſters, they ſaw much better than at preſent, their eyes being then much leſs ſenſible to the light.

They continued the above mode of life till they were about nineteen or twenty years of age, when they went to New York, and there employed themſelves in turning the wheels of tobacconiſts and cutlers. They both enjoyed good health, and remained in this ſituation three or four years. In the year 1798, they quitted New York on their way home, during the prevalence of the yellow fever. William had received the diſeaſe before he left New York, and died after ten days illneſs about two miles beyond Trenton, having walked three miles on the day he died. Joſeph ſlept with him every night,---and held

him in his arms when he died, yet no *contagion* was communicated!

Two years paſt, Joſeph had the ſmall pox, by inoculation, in a very favourable way, about forty pock appearing on his face, and principally on that ſide which he uſually placed neareſt the fire---Some time ago, he had the intermitting fever for fourteen weeks. It ultimately yielded to the bark, though he ſays he thinks it has injured him, *from laying in his bones.*

His brother was as tall as himſelf, and was affected with a ſimilar tremor of his head from his birth, to that which affected Joſeph.

He appeared of a mild diſpoſition, though he ſays he is much affected with vexation and low ſpirits, owing to his unfortunate ſituation.

He deſcribes the place of his birth to be a very low ground, ſurrounded by hills, marſhy, foggy, and very ſickly. But, as far as he knows, none of the neighbours were affected in a ſimilar manner.

I regret that my account of this intereſting caſe terminates here; the man appeared anxious to go, and promiſed he would call again with his mother, who he ſaid could give me further information, eſpecially reſpecting his ſiſters; he however has never ſince that period given me the wiſhed-for opportunity. After he was gone, many queſtions occurred to me, which the ſhortneſs of his viſit prevented my attending to.

With reſpect to the cauſe of this phenomenon, Mr. Blumenbach is of opinion "that the redneſs of the iris," (which however does not uniformly exiſt, as in the preſent inſtance) "and of the other internal parts of the eye, as well as the extreme ſenſibility which accompanies this redneſs, is owing to the total privation of that brown or blackiſh mucus, that covers all the interior parts of the eye in the ſound ſtate."—And Mr. Buzzi, ſurgeon to the hoſpital at Milan, has demonſtrated by diſſection, what Blumenbach had only ſuppoſed. In this inſtance the *uvea* was entirely wanting; and the ſkin, detached from different parts of the body, appeared to be entirely diveſted

of the *rete mucosum;* from the abſence of which, Mr. Buzzi accounts for the whiteneſs of the ſkin and hair.

From the obſervations of the above gentlemen, it appears pretty evident, that the abſence of the rete mucoſum, and of the pigmentum nigrum, is to be regarded as the proximate cauſe of the ſingular appearance of the Albino; but as far as I can yet learn, we are in the dark as to the remote cauſe. It ſeems moſt probable, that the parents, eſpecially the mother, during the period of geſtation, muſt influence it much; for we ſee in the ſame family, a variety of offspring. Thus, in the family of the preſent ſubject, of five children, four were affected in a ſimilar manner, whilſt an intermediate child was totally exempt. And Mr. Buzzi relates the caſe of a woman of Milan, who had ſeven ſons; the two eldeſt had long hair and black eyes; the three next had white ſkins, white hair, and red eyes, and the two laſt reſembled the eldeſt. Mr. Jefferſon alſo mentions three ſiſters of this deſcription, born of parents without any mixture of white blood, and having two other full ſiſters, black.*

* "I have known four of theſe myſelf, and have faithful accounts of three others. The circumſtances in which all the individuals agree are theſe. They are of a pallid cadaverous white, untinged with red, without any coloured ſpots or ſeams; their hair of the ſame kind of white, ſhort, coarſe, and curled as is that of the negro; all of them well formed, ſtrong, healthy, perfect in their ſenſes, except that of ſight, and born of parents who had no mixture of white blood. Three of theſe Albinos were ſiſters, having two other full ſiſters, who were black. The youngeſt of the three was killed by lightning, at twelve years of age. The eldeſt died at about twenty-ſeven years of age, in child-bed, with her ſecond child. The middle one is now alive in health, and has iſſue, as the eldeſt had, by a black man, which iſſue was black. They are uncommonly ſhrewd, quick in their apprehenſions and in reply. Their eyes are in a perpetual tremulous vibration, very weak, and much affected by the ſun: but they ſee much better in the night than we do. They are the property of Col. Skipwith of Cumberland. The fourth is a negro woman, whoſe parents came from Guinea, and had three other children, who were of their own colour. She is freckled, her eye-ſight ſo weak that ſhe is obliged to wear a bonnet in the ſummer; but it is better in the night than day. She had an Albino child by a black man. It died at the age of a few weeks. Theſe were the property of

Of the caſes recorded, it would ſeem to be more prevalent among males than females Mr. Jefferſon from the caſes which have been recorded by him, draws a different concluſion.

This affection it appears may be either local or general, as we find the rete mucoſum may be abſent, whilſt the pigmentum nigrum exiſts; hence the red pupil is not univerſal. This appears more particularly the caſe in the black Albino. Some are even born of a mottled colour, evincing a partial loſs of the rete mucoſum.

Does this affection take place immediately on conception, or is the change effected during the progreſs of pregnancy? Mr. Buzzi mentions that the woman adverted to, "during the three pregnancies that produced the Albinos, had a continual and immoderate appetite for milk, which ſhe took in great quantities;" but this was not the caſe when with child of the other four children. Whatever it may be, which influences this occurrence, it would appear muſt be accidental, as the alternate birth of Albinos, and of perfect children, could not otherwiſe in any inſtance take place.

It appears that the offspring of theſe luſus naturæ are ſometimes perfect, at others, ſimilar to themſelves, as in the caſes

Col. Carter, of Albemarle. A ſixth inſtance is a woman of the property of a Mr. Butler, near Peterſburgh. She is ſtout and robuſt, has iſſue a daughter, jet black, by a black man. I am not informed as to her eye-ſight. The ſeventh inſtance is of a male belonging to a Mr. Lee of Cumberland. His eyes are tremulous and weak. He is tall of ſtature, and now advanced in years. He is the only male of the Albinos which have come within my information. Whatever be the cauſe of the diſeaſe in the ſkin or in its colouring matter, which produces this change, it ſeems more incident to the female than male ſex. To theſe I may add the mention of a negro man within my own knowledge, born black, and of black parents; on whoſe chin, when a boy, a white ſpot appeared. This continued to increaſe till he became a man, by which time it had extended over his chin, lips, one cheek, the under jaw, and neck on that ſide. It is of the Albino white, without any mixture of red, and has for ſeveral years been ſtationary. He is robuſt and healthy, and the change of colour was not accompanied with any ſenſible diſeaſe, either general or topical."

Notes on Virginia—p. 137.

mentioned by Mr. Jefferſon. No light is therefore thrown upon the ſource of the affection by this fact, which ſeems altogether accidental.

The inſtances of negroes becoming white, are very numerous.—I do not recollect that in any of theſe, the pigmentum nigrum has been abſorbed, as no mention is made of a change in the colour of the eye. Indeed it is not clear, whether the colouring matter of the rete mucoſum is taken up, or only changed; in ſome, at leaſt, we are told the colour is of a healthy ruddy white, not like that of an Albino.

The ſudden change of the hair in a few hours, from fear, from a black to a white colour, of which we have ſeveral well-atteſted facts, muſt depend upon the change of colouring matter taken up by the hair, from the rete mucoſum. Its rapid alteration, eſpecially from ſuch a cauſe, is highly extraordinary.

In the animal creation man is not alone ſubject to this change of ſtructure.—In Mr. Peale's muſeum, are the opoſſum—mouſe—rat—muſkrat—flying and ground-ſquirrel, with white hair and red eyes; and a white black-bird, and white yellow-bird, with black eyes.

Does it ever occur in cold-blooded animals? Mr. Blumenback, who paid great attention to the ſubject, never ſaw it in them.

TO DOCT. JOHN REDMAN COXE.

HAVRE-DE-GRACE, 25*th Sept.* 1804.

SIR,

AFTER reading the obſervations of the celebrated Dr. Thornton and the Rev. Mr. Townſend on the efficacy of yeſt in the cure of typhus fever, I had determined to make trial of it, the firſt opportunity which ſhould preſent itſelf, and am highly gratified by the reſult.—On the 12th inſt. I was called to

a man of about 40 years of age labouring under a bilious autumnal fever, he lay in a motionleſs, inſenſible ſtate, his pulſe ninety, weak and intermitting—his eyes open and fixed, except on the near approach of any object, when they diſcovered that tremulous motion, which is cuſtomary—his mouth half open gave me an opportunity of inſpecting his tongue and fauces, which were covered with a dark-coloured ſlimy bilious matter—his extremities were cold, and his whole body covered with a cold clammy ſweat—now and then a trembling and twitching of the tendons of the arms and hands were obſervable—all attempts to make him ſpeak were ineffectual. He had been fifteen days ill, and twenty-four hours in his preſent ſituation. I immediately ordered two large bliſters to be applied to his legs, and directed half a wine-glaſsful of Madeira wine and water to be poured down his throat every two or three hours, and in the intervals tinct. cinchonæ in ſmall quantities conjoined with aromatic tincture: in ten hours he was without the ſmalleſt perceptible alteration, but continued in the ſame ſtate of inſenſibility, except when raiſed to take his wine, which he greedily ſwallowed when put to his mouth; in twenty-four hours the bliſters were cut and dreſſed without rouſing him. In deſpair of being able to ſave him, I ordered his mouth and fauces to be well waſhed with vinegar and honey, and a table-ſpoonful of yeſt to be given every three hours; in ten hours after his taking it, when his bliſters were again dreſſed, he complained of their ſoreneſs and ſpoke of his approaching death, but ſtill appeared not to obſerve my entrance, and could not anſwer when ſpoken to; his pulſe was ſlower and fuller than before, his ſkin warm, and his eyes had loſt a good deal of their vacant ſtare: he had taken during the day four table-ſpoonfuls of yeſt, and drank a pint of Madeira wine; he was ordered an anodyne at night which procured him a good ſleep, and in the morning I found him ſitting up in bed—his pulſe was now about ſeventy, full, ſoft and regular, and no ſymptom of diſeaſe remained but debility. He ate this morning a pint of panada, the firſt food he had taken for three days. As nothing

was now neceſſary but t o ſupport the vital energy, I directed a continuance of the tinct. cinchonæ with wine and a generous diet, and that his bowels ſhould be kept moderately open with ſome gentle medicine as ſenna, &c.—he continued to mend, rapidly, and in three days could walk abroad.

Should you think the above facts worthy attention, by giving them early publicity in your uſeful Muſeum, you will gratify,

Sir,

Your Obedient and Humble Servant,

TOBIAS WATKINS.

Account of an Abſceſs of the Liver, terminating favourably by Evacuation through the Lungs. *By* DR. F. PASCALIS.

PHILADELPHIA, *September* 28, 1804.

DEAR SIR,

THE hiſtory of ſucceſsful treatment in a dangerous complaint ſhould not be indifferent to medical readers; but the following caſe will, perhaps, appear the more intereſting, as we may derive from it, practical means for diſcriminating between diſtinct cauſes and ſimilar effects, and for a method of cure far different from ancient and much approved doctrines.

The patient I allude to, a man of forty-two years of age, is evidently of a ſound conſtitution and of a regular mode of living: yet, with a bilious habit, and a great ſhare of organical irritability, he had much impaired his health by previous fatigue of mind and body, when, in the middle of laſt July, he was ſeized with a violent fever and delirium. No time was loſt to aſcertain the nature of his attack. Three eminent phyſicians endeavoured to counteract the inflammatory ſymptoms by repeated bleedings and laxative remedies. Two days elapſed without any abatement of the fever; and it ſeemed

ſtill difficult to give a name to the diſeaſe, as no particular determination could yet be pointed out. Five times the blood had offered the appearance of a *lotura carnium.* On the third night, however, the patient began to cough and to ſpit much mucus tinged with blood. He complained alſo of a pain beneath the right breaſt, which extended down in the hypochondre of the ſame ſide, and connected with the ſhoulder. A tumor was now diſcovered on the liver and felt below the true ribs; for this reaſon, depleting and antiphlogiſtic remedies were continued, with bliſters and cuppings on the affected parts, and two grains of calomel every hour or two; but the ſtomach was ſo irritable that it frequently rejected this, and other medicines, which had very little effect or none at all:—it was therefore, by the help of ſix ſucceſſive bleedings more, that the patient apparently grew better and could at the end of three weeks ſit up and walk a little.—We muſt now obſerve, that during the abatement of the inflammatory ſymptoms, reſpiration was ſometimes tremulous, a ſlight yellow ſuffuſion had ſpread over the body; night ſweats were profuſe; and the patient could not lie down any length of time, without being rouſed up by horrid feelings of an impending ſuffocation, and great was beſides the bodily anxiety, which proved his convaleſcence to be deluſive; indeed, a freſh pulmonary inflammation took place, with cough, violent delirium and fever. The exacerbations were great, in the evening eſpecially, and required three ſucceſſive bleedings within the period of four days. On the fifth, the caſe was really much to be deſpaired of; the debility being extreme, the cough unabated, the pulſe corded, and the night ſweats rendered very diſtreſſing by the heat of the ſeaſon. The night following, he was ſeized with ſuch ſpaſms of the bronchiæ, that he would have attempted to bleed himſelf, had he not been promptly relieved by that operation. The emergency of the caſe pointed out to the attending phyſician, that as an internal abſceſs could not be doubted of, he muſt ſtimulate and even convulſe the *primæ viæ* to promote its rupture and diſcharge. A light antimonial

mixture evidently contributed to that deſirable effect; for after ſeveral doſes were taken, large evacuations of pus were brought on, by, and with cough. They continued as it were, by ſpells, and took place, once at leaſt, in twelve hours. They were alſo eaſily promoted by taking nouriſhment, or tonics, and by the jolting of a carriage; the nauſeous taſte of the matter frequently excited vomiting, which all together, with the cough, rendered the convulſive exertions of the abdominal muſcles very diſtreſſing. Theſe evacuations laſted nearly eight days, and after the two laſt, which were more copious and mixed with white flakes, the patient, who was already altered for the better, remained convaleſcent. A ſlight ſoreneſs was felt in the right hypochondre, which gradually diſappeared. By the help of a ſound and reſtrained diet, and of exerciſe by riding, he has attained a perfect ſtate of health.

We may diſtinctly perceive three periods in this caſe; that of an inflammatory fever preceding the formation of an abſceſs in the liver, and attended with a ſymptomatic pulmonary inflammation; that of a ceſſation of all inflammatory ſymptoms, offering evidently, thoſe of an internal impoſthume; and that of a freſh inflammation in the diaphragm and lungs, immediately followed by the diſcharge of the matter. It could not therefore be a matter of doubt whether the abſceſs was in the liver, ſince the patient began to feel pain, to cough, and to ſpit blood, on the third day only of the diſeaſe. The latter ſymptoms indeed ſhould have kept pace with the invaſion of the fever, had the pulmonary inflammation been the primary diſeaſe. The tumor or hardneſs diſcovered and felt under the true ribs, and the yellowneſs of the ſkin, were alſo, direct proofs of the affection of the liver, the ſubſequent effects of which were evinced by the exiſtence of the cough, only, during the firſt inflammation of that viſcus, and at the period of the diſcharge of the ſuppurated fluids, through the diaphragm and lungs. The poſſible inflammatory adheſion of thoſe parts is a well-eſtabliſhed point of pathological doctrine, and of courſe they may ſimultaneouſly be corroded by the

pus, and open an eaſy iſſue through the air-veſicles and bronchiæ. *Lieutaud* mentions the inſtance of a monſtrous tumor on the abdomen, which proved to be an abſceſs of the liver, when it was diſcharged through the lungs, and almoſt emptied before the exhauſted patient expired. Indeed, a fortunate concourſe of many circumſtances only can determine ſuch a favourable termination of the *pleuritic-hepatitis*, as Cullen obſerves, but it may be encouraging to remark that inſtances of the ſame are not uncommon. We may mention that of your honoured grand-father, Dr. John Redman, who to this day, in his eighty-third year, has continued to enjoy a healthy life.*

No caſe of diſeaſe, I ſhould believe, requires a more ſagacious and experienced judgment in practice. Contrary to what we have been taught by many celebrated writers, to withhold the lancet, after ſuppurative inflammation, in the preſent inſtance we ſee, that it has been, *fifteen times*, reſorted to, and with ſucceſs.—I cannot ſay the ſame of mercury, although it is almoſt a ſpecific in hepatitis; for our patient, who was repeatedly put under its operation, received no benefit from it, perhaps owing to the rapid formation of the abſceſs, or to accidental inſufficiency of that medicine. Tonic and ſtimulating remedies were of great help, and in no caſe of continual exhauſtion have I witneſſed more advantage derived from nouriſhment, ſparingly, but frequently exhibited.

Before I conclude this paper, ſir, permit me to inform the reader that I was myſelf the patient alluded to, and to offer my ſincere and unfeigned thanks to the three eminent phyſicians who conducted my treatment, Dr. Ruſh, Dr. Phyſick, and Dr. Caldwell. Their ſedulous kindneſs, guided by a ſkilful judgment, adopted a mode of practice apparently violent; but it was evinced the wiſeſt, in a caſe which offered no chance from nature or conſtitution. Of the attending phyſician, Dr. Ruſh, who had the moſt troubleſome taſk, during ſeven weeks of confinement, I ſhould not forget to mention

* The attack here adverted to, took place 50 years ago.—E.

the humane and affectionate care; nor to remark, that with his great talents, he eminently poſſeſſes all the qualities which conſtitute the phyſician. I wiſh for thoſe gentlemen, all poſſible profeſſional ſucceſs and private happineſs.

I have the honour of ſubſcribing myſelf, with great eſteem,

Dear Sir,

Your moſt obedient Servant,

FELIX PASCALIS.

DOCT. JOHN R. COXE.

An Eſſay on Superfœtation. By DR. WILLIAM DEWEES.

THE poſſibility of ſuperfœtation is not a new idea: the preſent eſſay is an attempt to revive it, and to eſtabliſh its probability, as well by reaſoning as by facts. Many caſes have occurred ſince the hiſtory of medicine to countenance a belief in it, and it did for a long time prevail; but, like many other opinions that could not admit of abſolute demonſtration, it has long ſince been laid aſide, or in other words, held as a phyſical impoſſibility.

It has been urged that ſuperfœtation could not take place, firſt, from the indiſpenſible neceſſity of the male ſemen paſſing through the mouth of the uterus to produce conception; and ſecondly, as ſoon as this event has taken place, the os uteri cloſes, and becomes impervious to the ſemen ejected in ſubſequent acts of coition.

If theſe opinions are founded on facts, the impoſſibility of ſuperfœtation is eſtabliſhed beyond the power of controverſy; but theſe are the points to be inveſtigated.

Let us therefore inquire into the probability of this theory, and ſee how well it will accord with facts and reaſon.

Before we proceed, however, any further, let us for a moment conſider the anatomy and ſituation of the unimpregnated uterus: we ſhall find it a ſmall flattened body floating as it were in the middle of the pelvis; compoſed of muſcular fi-

bres, nerves, blood-veſſels, lymphatics, &c. divided in general by anatomiſts into body, fundus, and neck; having two ſmall perforations near its fundus, which are the paſſages to and from the fallopian tubes; with a cavity capable of admitting a bean if its ſides were diſtracted; but theſe ſides are, for the moſt part, if not always, when not mechanically ſtretched by ſome power or other, in a ſtate of collapſe or contact, or at leaſt as much ſo, as a pretty thick mucus with which it is conſtantly ſupplied, will admit of; having a neck pendant in the pelvis, which is pervious and capable of admitting a probe, and this, like the body, is alſo lined with a thick ropy mucus; the termination of this neck is the os tincæ, which has no fixed place in the pelvis or vagina; it is ſometimes found inclining to the right, at others to the left; now looking upwards and anteriorly, preſently dipping downwards and poſteriorly; but moſt frequently it is found (eſpecially in women who have borne children) lying or reſting on the internal face of the perineum; poſſeſſing no power that we are acquainted with, to fix its ſituation at any time, conſequently is ſubject to all the changes of place that the preſſure of the abdominal muſcles may give it, when exerted in making of water and going to ſtool; to all thoſe that may ariſe from the weight of the inteſtines and viſcera; from the full or empty bladder; from the diſtended or flaccid rectum, &c.

After having thus far conſidered the uterus, let us next attend to what muſt be effected by the male, that impregnation may take place agreeably to the theory juſt mentioned. It is, that the male organs of generation muſt have ſufficient vigour to puſh a thick tenacious fluid through the narrow aperture of the neck of the uterus, and make a lodgement of it within its cavity: can it for an inſtant be ſuppoſed they poſſeſs this power? we think they do not for the following reaſons.

1ſt. Becauſe they have not, in our opinion, ſufficient ſtrength for this purpoſe, if it even be admitted that the extremity of the male urethra and the os tincæ of the female were in a ſtate of perfect appoſition.

2dly. Becauſe they ſeldom or never are in a ſtate of appoſition, owing to the contingencies juſt mentioned on the part of the female; and alſo on ſome depending on the male; the penis being either ſo long as to reach beyond the mouth of the uterus, or the urethra ſo imperfect in its continuance along the penis, as not to reach beyond the labia. We have abundant examples of the former among blacks, and of the latter, *Morgagni** gives us ſome memorable inſtances.

3dly. Becauſe the male organs do not poſſeſs ſufficient power, when exerted even to their greateſt degree, and when free from all reſtraint, to effect this purpoſe; but their power is conſtantly diminiſhed, by the vagina for the moſt part ſurrounding and embracing the penis pretty firmly throughout its whole length, and by the end of the penis coming in contact with ſome of the ſoft parts within the pelvis;† conſequently, the impetus the ſemen derives from the parts deſtined to puſh it forward, muſt be very much abated; and its projectile force is not only thus nearly deſtroyed, but its direction is ſo altered, that it cannot effect a lodgement within the uterus.

4thly. Becauſe the tenacity of the male ſemen is ſuch, as renders its paſſage through the ſmall aperture in the neck of the womb impoſſible, even by a power or force much ſuperior to that which we may rationally ſuppoſe to reſide in the male organs of generation.

5thly. Becauſe the ſmall aperture through which the ſemen muſt paſs, is conſtantly lined, or rather filled, with a thick tenacious fluid, which alone would ſeem to offer an inſuperable barrier to its progreſs, were the penis and os tincæ in the moſt favourable ſtate of contact.‡

* Morgagni de cauſis et ſedibus morborum. Epiſ. xlvi. Art. 8, &c.

† This eſpecially happens in women who have had a number of children; for in them the uterus becomes habitually lower after each ſucceeding labour, ſo that their uteri lie for the moſt part juſt within the os externum: beſides, many women are ſubject to a prolapſus of the womb ſo that this viſcus occupies completely the vagina—yet impregnation takes place with them as readily, as with thoſe who are not ſubject to this accident.

‡ Beſides the reaſons juſt mentioned, we may urge caſes, where it was phyſically impoſſible for the ſemen to procure admiſſion into the uterus, through its

Some, however, have been determined to overcome every difficulty that may be urged againſt this direct conveyance of the ſemen, by ſuppoſing the uterus poſſeſſed a power of admitting the penis by the opening of its mouth.

The admiſſion, however, of this glaring ſtretch of probability, will not anſwer their purpoſe, unleſs they alſo ſhew us a power whereby the direction of the neck of the uterus may be conſtantly regulated; ſometimes to advance it or make it recede; to elevate or depreſs it, as circumſtances may require: for we have already ſaid they were ſeldom or never in a ſtate of appoſition.

Beſides, many caſes of impregnation have taken place, where the penis never entered the vagina: a few of which we will relate.

Mauriceaux * mentions a caſe of a woman who conceived and was delivered of a child, although her hymen was not broken by coition.

Ruyſch † relates a remarkable caſe of a woman being in labour whoſe hymen was entire, and againſt which the child's head preſſed and prevented its delivery. He cautiouſly made an inciſion through it, and then perceived another thick membrane, this he alſo divided and the woman was delivered.

Hildanus ‡ mentions a caſe ſomewhat ſimilar to the two juſt quoted. He ſays a young woman in Paris was married, but could not admit the embraces of her huſband; in conſequence

mouth, by the force exerted on it by the projecting organs. In one inſtance with which I am well acquainted, the opening of the urethra is not at the extremity of the penis, but under the glans and on one ſide of the frænum.—In another with which I am equally well acquainted, the impetus the ſemen receives, however powerful it may be, is effectually deſtroyed before it eſcapes from the canal, by a ſtricture in the urethra; a conſiderable time is therefore employed before the ſemen is diſcharged, and this is at laſt only effected guttatim. In both the above caſes the wives of theſe gentlemen bear children: nor is there the leaſt room to ſuſpect their fidelity. In theſe inſtances, how was the ſemen made to paſs through the neck of the uterus?

* Obſervat. 489. † Tom. 1. Obſervat. 22.

‡ Centuria III. Obſervat. lx.

of which he ſued for a divorce; but the woman ſuſpecting herſelf pregnant, was examined by ſeveral eminent ſurgeons, who found the entrance of the vagina ſhut by a ſtrong, thick, callous membrane, in which were ſeveral ſmall openings ſufficient to allow of the diſcharge of menſtrual blood. The membrane was divided, and by proper means kept open; the huſband was ſatisfied, and in ſix months the woman was ſafely delivered of a full grown child.

Harvey* ſays, he "knew a woman, who had all the interior part of the neck of her womb excoriated and torne, by a difficult and painful delivery: ſo that her time of lying-in being over, though ſhe proved with child againe afterward, yet not onely the ſides of the orifice of the neck of the womb near the nymphæ did cloſe together, but all the whole cavity thereof, even to the inner orifice of the matrix, whereby there was no entrance even for a ſmall probe, nor yet any egreſs to her uſual fluxes. Hereupon the time of her delivery being arrived, the poor ſoul was lamentably tortured, and laying aſide all expectation of being delivered, ſhe reſigned up her keys to her huſband, and ſetting her affairs in order, ſhe took leave of her friends. When, behold, beyond expectation, by the ſtrong conteſt of a luſty child, the whole tract was forced open, and ſhe was miraculouſly delivered," &c.

We ſhall now add another remarkable fact from the ſame author.†

"The queen," ſays he, "had an exceeding white mare, excellently ſhaped, preſented unto her: whoſe genital parts (leſt by going to horſe ſhee might endanger the beauty of her proportions, and become unfit for uſe) were, as the cuſtome is, locked up all with iron rings. Notwithſtanding which, this mare (by what accident I cannot tell, nor could the groomes inform me) was made big with foale; and at laſt, when they feared no ſuch matter, ſhe foaled by night, and the foale was found alive next morning by the mare's ſide."

* Harvey Exercit. lxxiii. page 492. † Harvey, loc. cit.

We might eaſily multiply inſtances of the like kind, but theſe we truſt will be ſufficient to prove that conception has taken place where the hymen was entire, and conſequently, where the penis did not enter the vagina to eject ſemen into the uterus, to form of itſelf a fœtus, according to the opinion of one ſet of theoriſts; to mix with the female ſemen as taught by a ſecond; to moiſten the womb and by its aura impregnate the ovum, agreeably to a third; nor to travel through the fallopian tubes to the ovaria in conformity with a fourth.

Beſides, Harvey and De Graaf diſſected animals at almoſt every period after coition, for the expreſs purpoſe of diſcovering the ſemen, but were never able to detect the ſmalleſt veſtige of it in the uterus in any one inſtance.

We are however well aware that Ruyſch has aſſerted, in the moſt unequivocal manner, that he found the ſemen in its groſs white ſtate in one of the fallopian tubes of a woman, who died very ſoon after, or during the act of coition.—But we conceive that this able anatomiſt muſt have been deceived as to the nature of the ſubſtance he found in the tube, and that it was not really ſemen: our reaſons for thinking ſo are, firſt, that the ſemen after it has eſcaped from the penis, very quickly loſes its albuminous appearance, and becomes as thin and as tranſparent as water. Secondly, if it be even admitted the ſemen has effected a lodgment within the uterus, what power exiſts there, to tranſport it in its original form to the fallopian tubes? we know of no ſuch power.

It may however be urged, that the fallopian tubes have the power of abſorbing, and by this means would be able to take up the ſemen, and conſequently, it might be found in them.

But ſeveral important objections may be made to this opinion. Firſt, How will the openings or mouths, if you pleaſe to call them ſo, of the tubes come in contact with the ſemen, or, in other words, how will the ſemen get to them, ſince it muſt occupy the lower part of the uterus, and conſequently be at leaſt an inch from them? Secondly, the ſtructure of the tubes is ſuch, as forbids us to ſuppoſe abſorption to be a part

of their uſe. Thirdly, it would be aſſigning two offices to them, diametrically oppoſite to each other; firſt, to abſorb and convey the ſemen to the ovaria; then to ſeize the impregnated ovum or ova and carry it or them to the uterus. Need we ſay this is abſurd? we have no analogy in the human body that we are acquainted with to ſupport it.

We are therefore inclined to think, nay we are certain, that Ruyſch was miſtaken; ſome alteration in the natural ſecretion of the parts was miſtaken for ſemen; this was nowiſe difficult for him to do, as he had a particular theory to ſupport—and more eſpecially, as this ſuppoſed diſcovery made ſo much for it. It is not merely ſpeculative, when we ſay that ſome change in the natural ſecretion of the parts may have been miſtaken for ſemen; for we have the teſtimony of Morgagni on our ſide. He tells us he has ſeen ſimilar appearances in ſeveral inſtances in virgins and others, who had been ſubject during their lives to leucorrhœa. Ruyſch's ſubject, though not a virgin, may have yet been troubled with this complaint.*

After having thus, we believe, rendered it more than probable that the ſemen never paſſes into the uterus, and in doing this, removed the objections founded on the contrary belief, to the poſſibility of ſuperfœtation; let us proceed and ſee how we can ſupport the idea of its taking place, when abſorption from the vagina is admitted as the means, by which the male ſemen is applied to the ovaria.

This abſorption may be effected in one of two ways; firſt, either by the common abſorbents of the vagina taking up the ſemen and going the route of circulation; or ſecondly, by a particular ſet of veſſels which we ſhall call ſeminal abſorbents, and which have a direct communication with the ovaria. We are inclined to believe it to be in the latter way; as it would ſeem to agree better with the general ſimplicity of nature. No

* Morgagni indeed expreſsly tells us, when ſpeaking of the natural ſecretion of the fallopian tubes, that it had been miſtaken by ſome for the ſemen virile. *See Morgagni Epiſt.* xxvi. *Art.* 13.

one to be ſure has ever demonſtrated theſe veſſels (or as far as we know intimated a belief of them:) but this does not do away their exiſtence, or invalidate our opinion of them. No one has yet ever ſhewn the lymphatics of the brain; yet it is admitted on all ſides they exiſt; no one has ever traced them on the amnion; yet there is every reaſon for ſuppoſing them plentifully ſpread upon it; no one has ever followed them into the ſubſtance of bones, yet we have abundant proof of their conſtituting a part of them; no one has ever developed the muſcular fibres of the uterus, yet the phenomena of labour puts it out of all doubt that it poſſeſſes them.

We ſhall therefore, notwithſtanding we cannot demonſtrate them, take it for granted they exiſt. We ſuppoſe them ſituated juſt within the vagina; ſome may be even external to it, and juſt within the labia; moſt probably they are in ſome inſtances pretty abundant here, as we ſee conception taking place when the ſemen could only have been applied to theſe parts. After the ſemen has been thrown from the penis into the vagina, it is confined there a longer or ſhorter time by means of the rugæ; theſe rugæ anſwer a double purpoſe, firſt, they ſerve to retain the ſemen that it may liquefy and more eaſily ſpread over the ſurface of the vagina; and, ſecondly, by their means a much larger ſurface is offered to be abſorbed from. It is more than probable that theſe are the real uſes of the rugæ. They may perhaps contribute in a degree to increaſe venereal pleaſure, but this is certainly not their only uſe as ſome have imagined; for the doe, according to Harvey, has them in abundance; and he affirms, ſhe always takes the male with reluctance and ſeeming pain. Moreover, we ſee immodeſt women enjoying the venereal congreſs, when their vaginas, from the long continuance of their debilitating habits, have the rugæ deſtroyed.

It may be aſked, if there be this particular ſet of veſſels within the vagina for the expreſs purpoſe of taking up the ſemen, why do they not alſo abſorb the matter of gonorrhœa or lues, and thus produce the deſtruction of the ovaria by conveying

it to them? To this we might anſwer, that, ſuch may be their economy or diſpoſitions, that they are only rouſed to abſorption by their own particular ſtimulus, namely, the male ſemen.

This arrangement is not unique; we have many inſtances of this kind in the animal ſyſtem; thus, light admitted to the tongue produces no ſenſation; yet let fall upon the eye, powerfully affects it; the vibration of a muſical chord, or the tones of a flute, induce no change on the eye; but the ear is inſtantly influenced by them. But perhaps a more ſtriking and juſt example may be taken from the economy of the lacteals of the inteſtines; they refuſe admiſſion to the excrementitious parts of our food, or in other words are only excited to action by their own proper ſtimulus, namely the chyle. It perhaps may be objected here, that various other ſubſtances are taken up by them beſides chyle, ſuch as the colouring matter of madder, mercury, &c. But we muſt recollect, that mercury never has been detected in the circulatory ſyſtem; and Dr. Phyſick's experiments* go very far to prove it never is taken up. As to ſome other ſubſtances, we grant they may be, but muſt believe that, they either are not in ſufficient quantity or quality to make the chyle loſe its peculiar ſtimulus. Nay, perhaps the arteries and veins may be juſtly conſidered in point; as we think it more than probable that, no other fluid than blood would influence them to carry on the circulation. And we have arrived almoſt to a certainty, that no fluid ſave the male ſemen, will influence the ovaria ſo as to produce the phenomenon of a conception. It is true there are inſtances upon record, of hair and teeth being found in the ovaria of virgins, which might ſeem to contradict this belief; Dr. Baillie† and others furniſh us with examples of this kind; but in theſe caſes we agree with the Doctor that they are not the produce of conception; ſince, agreeably to Ruysch,‡ they have alſo been found in a man's ſtomach; if they are thus accidentally pro-

* In a paper read before the Academy of Medicine.

† Morbid Anatomy, page 265.

‡ Ruyſch, Tom. II. Averſar. Anatom. Decad. tert.

duced, they may with as little ſurpriſe be formed in the ovaria as elſewhere: we therefore cannot admit them as exceptions to this laſt poſition.

Since then we know, that certain parts of the body obey only certain or ſpecific ſtimuli, why may there not be a ſet of veſſels that are obedient only to the ſtimulus of the male ſemen? for our own part we ſee no difficulty in admitting the idea.

Is not this opinion ſtrengthened, by obſerving ſome women who have been barren with their firſt huſbands, prolific with their ſecond, and vice verſa? The ſemen, in theſe unſucceſsful inſtances, wanted that ſufficient energy to call the ſeminal abſorbents into action.

Beſides, the very ſudden effect which is ſometimes produced by the male ſemen upon the female conſtitution, ſuch as violent ſickneſs, retchings, vomitings, nervous affections as they are termed, &c. will ſcarcely admit of explanation, on the ſuppoſition that it muſt go the tedious route of circulation before it arrives at the ovaria to produce its effects. And it will perhaps be difficult to conceive then, how it can be ſucceſsfully applied to the ovum or ova, as it muſt ſtill be contained in blood-veſſels, whoſe ſides are impervious in the living animal; whereas, the ſeminal abſorbents moſt probably terminate on the ova, and thus, as ſoon as fit, will be ſubjected to the influence of the male ſemen whenever abſorbed.

However, be this as it may, the male ſemen ſeems abſolutely neceſſary to the production of the animal, and is in ſome way effectually applied to the ovum or ova, and thus produces the phenomena of impregnation.

Should there be but an ovum fit for the male influence, we ſhall have but one fœtus, if two, we ſhall have twins, and ſo on. But for the moſt part there is only one; nature kindly providing againſt the neglect that muſt neceſſarily ariſe from ſeveral being produced at a birth.

It would appear in general alſo, that a regular period elapſes between the perfecting of each ovum; and hence we ſee women bearing children at ſtated intervals: for inſtance, every

thirteen or eighteen months; every two, three, four, five, ſix, or ſeven years. Two, three, or four ova may chance to ripen (if we may ſo term it) at the ſame time; or in other words, may be in a condition to receive ſucceſsfully the male influence; then we ſhall have, as we obſerved before, a correſponding number of children.

This law of perfecting the ova, however, is not immutable; there may ſometimes happen a conſiderable variation in the term, but when in a condition, may receive the ſtimulus of the male ſemen, and this may happen during the reſidence of a fœtus in utero; hence ſuperfœtation. But the time which elapſes, for the moſt part is pretty uniform; and it would appear neceſſary alſo, that the firſt ovum or ova ſhould be diſplaced before others can be perfected. This is a wiſe regulation of nature; otherwiſe, women who have lived long ſingle, or been a long time deprived of commerce with man, would be ſubject to ſerious inconvenience; they would be liable to a litter of children. This rule obtains in other animals beſides man.*

Let us ſuppoſe now, a fœtus to be occupying the uterus; the woman to have a ſubſequent connection with her huſband; the ſemen to be abſorbed and to meet with another ovum capable of being influenced by it; what will be the conſequence? the ovum will be impregnated, and the ordinary changes will take place in the ovarium; the ovum will eſcape into the fallopian tube, and through it paſs to the uterus; here it will meet with a feeble reſiſtance from the membranes which already line the uterus, and conſequently cover the openings of the tube; this reſiſtance will however be ſoon overcome; either by the ordinary efforts of the tube, or by the ovum reſting unuſually long, and beginning to develope, obliging the mouth of the tube to open, while it contracts with unuſual violence behind, from the ſtimulus of diſtention, and thus forces it forward and diſplaces the ſlightly adhering membranes, and by

* See Harvey, Spallanzani, &c.

this means will effect a lodgement in the uterus by the ſide of the other, where it will be as completely developed for the period of its ſtay, as though it had been placed there at the ſame inſtant with the other. It will have its own membranes, water, and placenta; having nothing in common with the other but its nidus.

In confirmation of the above doctrine, we ſhall beg leave to relate a couple of caſes, complete we conceive, in all their parts, to force the belief of the poſſibility of ſuperfœtation; or in other words, that the caſes we ſhall detail, are really and bona fide caſes of ſuperfœtation.

CASE I.

On the 10th October 1799, at 5 o'clock P. M. I delivered a lady of a fine healthy boy after a labour of ſome hours. After a careful delivery of the placenta, I examined my patient by the vagina, and alſo by a hand upon the abdomen, to diſcover if there was another child, (for it was ſuppoſed by the lady's friends ſhe was pregnant with twins) but could diſcover nothing like one. She was therefore put to bed, and enjoyed a ſleep of ſeveral hours: ſhe was rouſed from this at length, by ſevere and regular pains; after they had continued ſome time ſhe felt ſomething protruding from the vagina: this gave great alarm to her nurſe and friends, and I was immediately ſent for. When I arrived I found them in the greateſt alarm; they ſuppoſing it was the uterus which had paſſed out. I immediately examined my patient, and found, inſtead of the uterus, an ovum complete. I extracted it carefully and entire. Upon opening the membranes, an embryo of between three and four months preſented itſelf, looking freſh and almoſt tranſparent; the funis large, white, and ſhining; the placenta healthy and entire; the blood on its maternal ſurface rather florid, a proof it had not long been detached from the uterus; the waters clear, abundant and gelatinous; in a word, every thing looked as though the child had juſt parted with

life. Thoſe who are in the habit of ſeeing abortions, very readily diſtinguiſh between thoſe which have juſt been deprived of life, and thoſe which have parted with it a long time; this bore every mark of freſhneſs. I was therefore much ſtruck with its ſingularity.

The following conſiderations will, I think, eſtabliſh beyond doubt that, it was a caſe of ſuperfœtation.

Firſt, the abſence of hæmorrhagy during the whole period of geſtation; which would not have been the caſe, had the placenta been any time detached before the period of labour.

Secondly, the ovum having nothing in common with the full-grown fœtus; on the contrary it had its own membranes, water, placenta, &c.

Thirdly, the freſh and ſound appearance of the ovum.

Fourthly, it having maintained its attachment to the uterus, after the birth of the other child; or at leaſt it did not deſcend, ſo as to be diſcoverable by a careful examination by the vagina and otherwiſe, which renders its attachment more than probable, ſince this muſt and would have happened by the common tonic contraction of the uterus* after the birth of the other child and placenta; and that the uterus did contract is certain, as no hæmorrhage followed the extraction of the placenta.

CASE II.

A white woman, ſervant to Mr. H. of Abington townſhip, Montgomery county, was delivered about five and twenty years ſince of twins; one of which was perfectly white; the other perfectly black. When I reſided in that neighbourhood I was in the habit of ſeeing almoſt daily, and alſo had frequent converſations with Mrs. H. reſpecting them. She was preſent at their birth, ſo that no poſſible deception could have been practiſed reſpecting them. The white girl is delicate,

* By tonic contraction we mean that regular and conſtant contraction whereby the uterus is reduced to its original ſize, after the diſtending cauſes are removed.

fair ſkinned, light haired, and blue eyed, and is ſaid to very much reſemble the mother. The other has all the characterizing marks of the African; ſhort of ſtature, flat, broad noſed, thick lipped, woolly headed, flat footed, and projecting heels; ſhe is ſaid to reſemble a negro they had on the farm, but with whom the mother never would acknowledge an intimacy; but of this there was no doubt, as both he and the white man with whom her connexion was detected, ran from the neighbourhood ſo ſoon as it was known the girl was with child.

We might produce other inſtances of ſuperfœtation from the moſt reſpectable authorities, ſuch as Ariſtotle, Harvey, &c. but ſuppoſe the above two ſufficient, as it ought perhaps to be more a matter of ſurpriſe, why it does not more frequently take place, than that it ſhould occaſionally happen; as its occurrence or non-occurrence, entirely depends on the contingency of the ſooner or later arriving at maturity, of the ova, and the abſorption of ſemen.

PHILADELPHIA,
October 9th, 1804.

PHILADELPHIA, *Oct. 16th*, 1804.

DEAR SIR,

PREPARATORY to your receiving ſome practical remarks made during my reſidence in the iſland of Jamaica, permit me to preſent you with a ſhort account of the climate, at leaſt as far as it is connected with the cauſe of diſeaſes.

I am, dear Sir, with great reſpect,
Your very obedient Servant,
GEORGE FARQUHAR.

DR. JOHN REDMAN COXE.

THERE is, perhaps, no country in the world of the ſame extent as Jamaica,* which embraces ſuch a diverſity of climate; the temperature of the air being not unfrequently, at Spaniſh town and Kingſton, and in the lowlands near the ſea coaſt, from 92° to 95° of Farenheit's thermometer at noon; and ſeldom lower than 80° in the morning, during the ſummer months; whereas, in many mountainous ſituations, and in ſome, within twelve or fifteen miles of the city of Kingſton, during the ſame period of the year, the thermometer is frequently conſiderably below 70° in the morning, and ſeldom reaches 80° at noon; and during the prevalence of the ſtrong north winds in the winter months, in ſome very high ſituations the thermometer is often as low as from 50° to 55° in the morning, which renders the uſe of fires not only agreeable, but eſſentially neceſſary.—The difference of heat is alſo very conſiderable in the morning at this ſeaſon of the year in the towns and on the plains, although, in the middle of the day, the variation is not in the ſame proportion. The hotteſt time is from the firſt of June till October, when the wind blows from the ſouth eaſt, accompanied occaſionally with ſhowers, although in the lowlands, (particularly in the pariſh of Vere,) adjoining the ſea coaſt on the ſouth ſide, in ſome years there is not a drop of rain falls for many weeks; ſo that vegetation entirely ceaſes, and the ſugar canes are burned to their roots. This is the cauſe of the extreme irregularity of crops in that diſtrict: an eſtate, which after favourable rains yields from four to five hundred hogſheads of ſugar in one crop, in ſome other years does not make a pound. In this iſland, as well as over the whole of the Weſt Indies, there is a regular ſea breeze, without which, the towns and lowlands would not be habitable.—The uniformity of this breeze is known to be influenced by the ſun; it following his courſe daily from eaſt to weſt. In Jamaica, it uſually ſets in from eight to nine o'clock in the morning, increaſes as the ſun approaches the meridian,

* This iſland is about 170 miles in length and 60 broad, and is ſituated between 17° 44′ and 18° 34′ north latitude and 75°55′ and 78°48′ weſt longitude.

and then gradually dies away as he reaches the horizon; being afterwards ſucceeded by what is termed the land wind, which blows during the night from the mountains to the lowlands in all directions.

It is to be obſerved that in ſuch of the Weſt India iſlands as are of ſmall extent and level, the ſea breeze continues during the whole of the night. In the lowlands of Jamaica, particularly between Kingſton and Spaniſh town, there are many ſwamps and lagoons which form ample ſources of diſeaſe; the vicinity of theſe places, is, however, more or leſs ſickly as they are or are not cleared of wood, and expoſed to the action of the ſun.

In the middle of the iſland where there are large tracts of ſwampy land covered with high woods, and conſequently impervious to the action of the ſun, the endemic is ſeldom known. As a teſtimony of this, there is a diſtrict, known by the name of Sandy River, ſituated in the moſt remote part of the pariſh of Clarendon, and adjoining St. Ann's, where ſeveral very productive coffee plantations have been, during the laſt ten years, eſtabliſhed, and where, in the ſpace of a mile, five or ſix white families, with ſeveral hundred negroes reſide; and although contiguous to theſe plantations there are large tracts of ſwampy land to the extent of ſome miles, yet, as they are covered with high woods, and conſequently ſhielded from the action of the ſun, both the whites and negroes in the vicinity, enjoy the moſt uninterrupted ſtate of health; ſo that for ſwamps to conſtitute the ſource of diſeaſe, they muſt be previouſly acted upon by heat. In the mountainous parts of Jamaica, a prodigious quantity of rain falls in the courſe of the year, and more particularly in the months of May and October, when the rains are general all over the iſland. This, neceſſarily renders June and November the moſt ſickly ſeaſons of the year; and, as the fatality of the endemic at theſe times is exactly in proportion to the quantity of rain fallen, and the degree of ſubſequent heat; the rains in October continuing longer than thoſe in May, the remittents in November, in ge-

neral aſſume a worſe type than thoſe in June.—During the continuance of the rains there is ſeldom much ſickneſs, except, occaſionally pleuritic and other inflammatory complaints among the negroes: and it is not till the extreme heat has concentrated the marſhy miaſmata to that degree, which, in conſtitutions not aſſimilated to the climate, is productive of the worſt ſpecies of the endemic, that ſickneſs becomes general. The robuſt inhabitants being then affected with remittents; while dyſentery, intermittents, diarrhœa, and hepatitis, attack thoſe of a more relaxed habit. Theſe are all modifications of the ſame endemic, occaſioned by difference of conſtitution only, and not by any difference in the miaſma. The period of the year moſt healthy, is from the firſt of December till April: during this time, the cold north wind blows, the atmoſphere is clear, and the effects of the autumnal rains having ceaſed, thoſe, who have ſuffered from indiſpoſition during the month of November, begin to recover, and by March are entirely reſtored to health. The cold in the mornings during the prevalence of the north winds, is, in the mountains particularly ſharp and piercing; and the uſe of flannel next the ſkin, is, eſpecially to ſuch perſons as are much relaxed either by the climate, or by ſickneſs, extremely neceſſary. Indeed the tranſitions from heat to cold in this climate are ſo ſudden, that thoſe who have ever been ſubject to hepatic or other viſceral obſtructions, would do well to make a flannel or calico ſhirt a regular part of their dreſs at all times of the year. It is unneceſſary to obſerve, that if an European can make his election of the time of arriving in a tropical country, during the early part of January, or in December, is the proper ſeaſon; as, before the recurrence of the ſubſequent ſummer heat, he will be in ſome meaſure, aſſimilated to the climate; and ſhould he arrive at any other period of the year, a reſidence for a few months in the mountains, would be extremely beneficial: however, let his prudence or precaution be what it may, he muſt expect, ſooner or later, a ſeaſoning fever: to protract the time of its approach, is, however, a matter of great moment, as the longer

he remains in the climate before the attack, the milder in general will be the diſeaſe. In addition to the precaution of a ſhort reſidence in the mountains, ſhould he arrive during the warm ſeaſon of the year, intemperance of every deſcription is to be avoided, particularly in the uſe of ſpirituous liquors, all expoſure to the ſun in the middle of the day, and to the night air; violent exerciſe, or any thing that will produce much excitement in the ſyſtem, is alſo highly pernicious.—Upon a perſon's arrival in the tropical latitudes, he ſhould be plentifully blooded and purged: and a repetition of this, before landing, will be particularly proper in ſuch as are of a full habit of body. In ſhort, what will contribute to the ſafety of an European ſtranger in this climate, is, as ſpeedily as poſſible, to reduce his conſtitution to the ſtandard of that of the inhabitants; and, as experience from obſervation, has clearly pointed out the degree of danger in the tropical endemic, to be exactly in proportion to the vigour of the patient, to remove plethora ſeems an object of the firſt importance. The uniformity of perſpiration ſhould be promoted, by bathing frequently in water rather warmer than blood heat, and the body ſhould be kept in a lax ſtate; coſtiveneſs is not only to be avoided, by the frequent evacuation of the contents of the bowels, but, in full ſtrong habits, purgatives of the moſt active nature ſhould be adminiſtered, ſo as to produce conſiderable excretions from the veſſels of the inteſtines, which relieve the blood-veſſels much, and which are a ſpecies of depleting, perhaps, better adapted than any other, to reduce the habit of a robuſt European to a ſtate congenial to health in a tropical country. When we reflect upon the dreadful mortality which has, for the laſt ten years, occurred among European ſtrangers in the towns and on the plains of Jamaica; ſo that one-half, and in ſome years two-thirds, of thoſe who have, arrived, and not taken up their abode in the mountains, have in the courſe of the firſt ſix months fallen victims to the climate, this ſubject muſt appear of the firſt importance. During the prevalence of the north winds in the early part of the

year, the whites as well as the negroes, are particularly healthy; ſo that in the months of February and March, it is not at all unuſual to have the plantation hoſpitals ſhut up for many weeks. Towards the end of April, the heavy clouds which begin to make their appearance upon the tops of the mountains, preſage the approach of the future rains; the ſea breeze is neither ſo regular nor powerful at this time, which renders the heat extremely oppreſſive. This continues till near the middle of May, when the rain begins to fall in torrents from the mountains, accompanied with moſt violent ſhocks of thunder and lightning.

At this time, there is ſeldom much ſickneſs among the whites, except ſlight bowel complaints.—Pleuriſies, and other inflammatory diſeaſes, however, are very prevalent among the negroes; but it is not till the extreme heat in June has produced exhalations, from the moiſture occaſioned by the prior rains, that the endemic becomes general. The ſky is clear, and the ſea breeze blows at this ſeaſon with unuſual violence; and, as I mentioned before, the type of the endemic depends in a great meaſure upon the quantity of rain fallen, and the degree of ſubſequent heat; and the rains in October being of longer duration than in May, ſo the endemic in June is generally much milder than in November; although, among newly arrived Europeans, fevers of the very worſt kind not unfrequently prevail at this time. The three ſucceeding months of July, Auguſt, and September, certainly form the warmeſt period of the year; and as the land wind is then extremely mild, the nights are unuſually oppreſſive; but as the ſea breeze blows with its ordinary force during the day, the heat is rendered more tolerable. There are occaſional ſhowers at this time, and though they ſeldom give riſe to much ſickneſs among the more robuſt inhabitants, thoſe of a more relaxed habit are frequently affected with diarrhœas, and other bowel complaints, occaſioned by an increaſed ſecretion of bile; and theſe months are as fatal to the European ſtranger as any other during the courſe of the year. Auguſt, Septem-

ber, and October, form what is called the hurricane ſeaſon, as, although hurricanes do not happen every year, they are always during theſe months. Towards the end of September the air becomes equally oppreſſive as in April; and the clouds appear on the mountain tops, indicating the ſpeedy recurrence of the autumnal rains, which commence without any regularity; ſometimes at the latter end of September, and at other times not until the middle of October, though at the commencement of this month they are uſually expected. They generally ſet in, as thoſe in May, with heavy ſhowers from the mountains, attended with lightning and thunder, though the latter is not ſo loud as what accompanies the ſpring rains.

From the immenſe quantity of thunder and lightning which occurs in tropical countries, it is aſtoniſhing how little injury is produced; as in the courſe of ſeventeen years, during which I reſided in Jamaica, I do not remember more than three or four accidents from that cauſe. The autumnal rains generally continue till the end of October, or ſome time early in November, when the ſtrong north winds ſet in. During the continuance of the rains, the negroes are particularly liable to inflammatory complaints of the lungs, and affections of the bowels. The month of November, as has been already obſerved, is the moſt ſickly period of the year: the inhabitants of all deſcriptions, as well as ſtrangers, ſuffering from the effects of the preceding rains.

Remittents at this time rage among the more robuſt inhabitants and newly arrived Europeans, with extreme ſeverity; and thoſe, who are debilitated from a long reſidence in the climate, are affected with dyſentery, diarrhœa, and hepatic complaints. The putrid ſore throat is alſo occaſionally epidemical at this ſeaſon, although its attacks are confined chiefly to children and females of a relaxed habit.

Having now given a ſhort but very imperfect deſcription of the climate of Jamaica, I ſhall add a few words on that part of the iſland where I reſided, viz. the mountain diſtrict of the pariſh of Clarendon, ſituated near the centre of the iſland.

The temperature of the air is here, conſiderably cooler than that in the lowlands, though not ſo cold as many mountainous ſituations in Jamaica; the thermometer being generally, in the morning, from 70° to 75°, and ſeldom higher at noon than 80°. This temperature agreed extremely well with the inhabitants; and newly arrived Europeans generally ſuffered much leſs in the ſeaſoning fever than on the lowlands. The high diſtrict of Clarendon embraces a large tract of country, containing mountains of conſiderable height, interſperſed with fertile vallies, many rivers, and innumerable ſprings of the fineſt water in the world. In the vallies, extenſive fields of the luxuriant ſugar cane, preſent a moſt agreeable proſpect; the works for manufacturing the ſugar, with the buildings for the accommodation of the white people and negroes, appearing at certain diſtances as ſo many ſcattered villages.—Groves of the majeſtic cocoa-nut tree, with thoſe of other tropical fruits, occaſionally vary the proſpect, while the mountains are covered with extenſive coffee fields, which, when the fruit is advancing to maturity, preſent a moſt beautiful appearance. The diſeaſes in the mountain diſtrict of Clarendon, were few in number among the whites. Remittents, intermittents, dyſpepſia, diarrhœa, dyſentery, hepatitis, and other inflammatory complaints, compriſed the whole catalogue; and they were generally, infinitely milder than in the lower parts of the iſland. There are many diſeaſes to which the inhabitants of cold countries are liable, which, in warm climates are unknown. Phthiſis, ſo fatal in cold latitudes, rarely occurs in Jamaica; and I never met but with one caſe of calculus in the bladder, which the gentleman brought from Europe with him; and, although he has been now upwards of ten years in the iſland, from a little time after his arrival, it has given him no trouble. Mania is a very rare diſeaſe in Jamaica, and cancers occur but ſeldom: of the latter diſeaſe I only remember four caſes, which were in perſons of extreme advanced age, and who had for thirty or forty years uſed only water as their drink. Would not this imply that cancer had for its ſource ſomething with which

water is impregnated? The dry belly-ache, which half a century ago made ſuch havoc in Jamaica, is now almoſt unknown. The gout ſometimes occurs here, but not ſo generally, nor is it ſo formidable, as in northern countries.

The ſmall pox and meaſles have been frequently epidemical in Jamaica, but as the inoculation of the former diſeaſe is now ſuperſeded, by the invaluable diſcovery of vaccination, we may reaſonably hope it will ſoon be baniſhed from the iſland. Rheumatic affections not unfrequently occur in Jamaica, and the ulcerated ſore throat is often epidemical and extremely fatal.

Females arrive ſooner at puberty in tropical countries than in Europe; they menſtruate earlier, and are ſubject to uterine weakneſſes, and ſuch other diſeaſes as depend upon a relaxed habit. White children are uncommonly healthy here, till they arrive at the age of five or ſix years; they ſoon afterwards, however, become relaxed and debilitated, and ſuffer from viſceral obſtructions. Rickety or deformed children are ſeldom to be ſeen in Jamaica, and women undergo the proceſs of parturition with little inconvenience, and caſes of difficult labour ſeldom occur.

The lues venerea is a diſeaſe to which the inhabitants of all deſcriptions are liable, and which is, in innumerable inſtances among the negroes, hereditary.

Having now pointed out the diſeaſes to which the white inhabitants are ſubject, as well as thoſe from which they are exempted, in warm climates, in general; I will add a few words on one which has occaſionally prevailed among newly arrived Europeans, ſoldiers and ſeamen, in the towns, and in ſome particular ſituations in the lowlands for the laſt ten years, and known under the terrific name of yellow fever. This diſeaſe made ſuch havoc for ſome time, that it excited the moſt ſerious alarm among the inhabitants of all deſcriptions; being then believed to be of a highly contagious nature, which, if true, would have ſoon depopulated the whole iſland. Experience, however, ſoon proved the contrary: the attendants of

the ſick, whether white perſons already aſſimilated to the climate, or people of colour, having univerſally remained free from the diſeaſe; newly-arrived Europeans being alone ſubject to its ravages. Medical writers inform us that this is by no means a new diſeaſe, but the ſame to which Europeans have always been liable in a greater or leſs degree, on their firſt arrival in the Weſt Indies. That it has been unuſually prevalent and fatal in Jamaica ſince the year 1793, is certain; but this muſt be referred to ſome particular conſtitution of the atmoſphere, which induces endemics more at one time than another: and it is to be obſerved, that when this diſeaſe was ſo fatal in 1793, and the three ſubſequent years, there was an unuſual influx of European ſtrangers, particularly of the army and navy, occaſioned by the war. But, although the mortality during thoſe years was exceedingly great, yet it was confined to the towns, and particular ſituations on the plains only. In the mountain parts of Jamaica, even among the newly-arrived Europeans, this complaint was ſcarcely known; and, although I had an opportunity of attending ſome hundred young men in their firſt indiſpoſition, in the diſtrict where I reſided, I do not recollect ever meeting with a caſe of the true tropical continued fever. A diſeaſe of a very different nature is ſaid to have been brought to Jamaica with ſome Iriſh regiments in the year 1796; this was the common typhus, jail, or hoſpital fever, and was highly contagious: it carried off a great number of the ſoldiers before their arrival, and continued its ravages for ſome time after. The two regiments of Iriſh brigade alluded to, buried in ſeven months more than one-half of their officers and privates. Perſons of every deſcription connected with the ſhipping, and lately from Europe, were ſubject to this diſeaſe, which was much more rapid in its progreſs, and more generally fatal than the tropical continued fever. It gradually, however, diſappeared, and by the end of the year not a caſe of it was to be ſeen. The negroes are liable to a much greater variety of diſeaſes than the white inhabitants; as, beſides thoſe before enumerated, they ſuffer from yaws, coco

bay, Guinea-worms, ulcers, king's evil, and dirt-eating: they are alſo, either from accidents or cold, peculiarly liable to tetanic affections; from the former cauſes, this complaint is univerſally fatal; from the latter, it generally yields to a combination of the uſual remedies. The triſmus naſcentium or locked jaw, alſo makes dreadful havoc among the negro children, from the 7th till the 9th day after their birth, and by which one-half of thoſe born in the courſe of the year, are not unfrequently carried off, although I do not remember an inſtance of its occurring in a white child.

In Jamaica there are ſeveral vegetable poiſons which perhaps may not improperly be mentioned, viz. the manchineel apple, night-ſhade, dumb cane, the bark of the cabbage tree, and bitter caſſada. It is well known, that although the farinaceous part of this laſt root forms excellent bread, the expreſſed juice is a moſt deadly poiſon; a certain antidote is, however, now, ſo univerſally known, that death, from its being accidentally ſwallowed, ſeldom occurs: this was diſcovered in rather an extraordinary way; it being obſerved that hogs, though immediately poiſoned upon eating the roots after their being previouſly waſhed, ſuffered no injury from what they turned out of the ground, and eat with the ſurrounding earth; when therefore it is known a perſon has eaten bitter caſſada, a quantity of common earth is immediately mixed with water, and ſwallowed, and repeated every ten or fifteen minutes, till all the effects of the poiſon have ceaſed: a few hours after, a doſe of caſtor oil, or Glauber's ſalts, is given to empty the ſtomach and bowels of the earth; and the perſon next day is perfectly free from complaint. Though there is no doubt any alkali would be equally efficacious as earth, yet, it, being always the moſt acceſſible, is made uſe of, and never fails in its effect. I have met with ſome hundred caſes of perſons poiſoned with this root, and on ſome of whom it had produced the moſt alarming ſymptoms, ſuch as violent convulſions, cold

ſweats, intermitting pulſe, with every appearance of approaching death; yet, in leſs than half an hour, a few draughts of the earth and water, have removed every complaint.

Deſcription of Dr. Physick's *improved Gorget. In a letter from* R. B. Bishop, *Surgeon's Inſtrument-maker, to* Dr. Coxe, *(with a plate.)*

Sir,

FINDING that the Gorget conſtructed according to a plan communicated to me by Dr. Phyſick ſome time ago, has met with much approbation, I take the liberty of ſending you a drawing, together with a deſcription of that inſtrument.

In all gorgets (even the moſt modern), much difficulty is experienced in forming a fine edge contiguous to the beak: and, as I underſtand it is deſirable, that that part of the inſtrument ſhould be very keen, becauſe with it the ſection of the ſoft parts is commenced, and continued through the whole of the parts to be divided; it will therefore appear that this inſtrument poſſeſſes every advantage that could be derived by obviating that difficulty, and enabling, not only the inſtrument-maker, but the ſurgeon himſelf, to form an edge with complete eaſe, on the whole of that part of the inſtrument which is intended to cut. It has alſo the advantage of being more portable and leſs expenſive than the common ſets of gorgets.

Fig. I. A perſpective view of the inſtrument; the blade a little open to ſhew in what manner it is connected to the ſtem and ſecured by the ſcrew.

a. The blade.

b. The ſtem.

c. The ſcrew.

d. The beak.

e. The cutting edge.

Fig. II. The ſtem of the inſtrument, comprehending the haft and beak.

f. A groove, gradually deepening to admit the point of the blade, fig. III.

g. A perforation in the direction of, and to admit the peg *k*, as a further ſecurity, and to prevent injuries to the point of the blade by the upper part of the groove *f*.

h. The opening in the handle admitting the blade.

Fig. III. A back view of the blade as relieved from the ſtem. It is common to furniſh each inſtrument with five or ſix blades of different ſizes.

i. The point.

k. The peg.

l. The cutting edge—the curved line ſhewing the manner of grinding it away to form the edge.

m. The female ſcrew.

Fig. IV. A ſection of the gorget of the natural ſize, deſcribing the angle formed by uniting the blade and ſtem.

The ſize and angle of the blade and haft of this inſtrument, are the ſame with Mr. Cline's gorget. The drawing repreſents it of little more than half its ſize.

I am, Sir, with reſpect,

Your moſt obedient Servant,

R. B. BISHOP.

PHILADELPHIA, *November 1ſt*, 1804.

Deſcription of DR. HUTCHINSON'S *improved Splints, in a Letter to the Editor, (with a plate.)*

SIR,

THE difficulty of managing ſimple oblique, and compound fractures of the leg, where both the tibia and fibula have been broken, every ſurgeon has experienced. It has been my lot to have ſeveral ſuch caſes: I ſoon found that a flexed poſition of the limb was not the moſt favourable to inſure ſucceſs. The method of Deſſault appeared to be more ſa-

tisfactory than that of Pott, but even it will admit of ſome improvement.

In thoſe caſes of fracture which came under my own notice, it was evident, that the common ſplints, which I then uſed, kept up no extenſion whatſoever, though they were applied with great care. The moſt trifling action of the muſcles was ſufficient to diſplace the broken ends of the bone, notwithſtanding my patients had been bled repeatedly.

Thinking that theſe difficulties might be avoided, by the application of an apparatus capable of keeping up a powerful extenſion, ſuch a one was conſtructed, and made uſe of in the next caſe which I attended. The following is a deſcription of it. The patient being placed on his back, with the fractured limb reſting on a pillow, two pieces of tape were bound on each ſide of the leg about three inches from the knee, by a common roller; the ends of the tape projecting ſome diſtance above and below the roller. As near as convenient to the ankle, another bandage is to be applied, having under it two pieces of tape, one on each ſide of the leg. The ſplints are next to be fixed on. A good idea of them can be obtained by examining the plate. Fig. I. repreſents a limb with the ſplints, bandages, and tapes applied; a, the bandage near the knee; b, the bandage at the ankle; c c, pieces of tape under the bandage, and on the inner and outer ſide of the leg. Fig. II, repreſents one of the ſplints ſeparate from the limb; a, points to four holes at the upper end of the ſplint, through which the pieces of tape, ſecured to the ſides of the leg by the roller, near the knee, are to paſs, and be tied as ſeen at d, in fig. I.—b, is a hole near the lower end of the ſplint, through which the piece of wood, fig. III, is paſſed, as repreſented at e, in fig. I, and to which the pieces of tape under the roller at the ankle are tied, as in f, fig. I, for the purpoſe of extending the limb.

In the apparatus of Deſſault, the ſame parts of the leg are uſed for keeping up extenſion and counter-extenſion, as in the one juſt now deſcribed; but his ſplints and bandages are trou-

Fig.1.

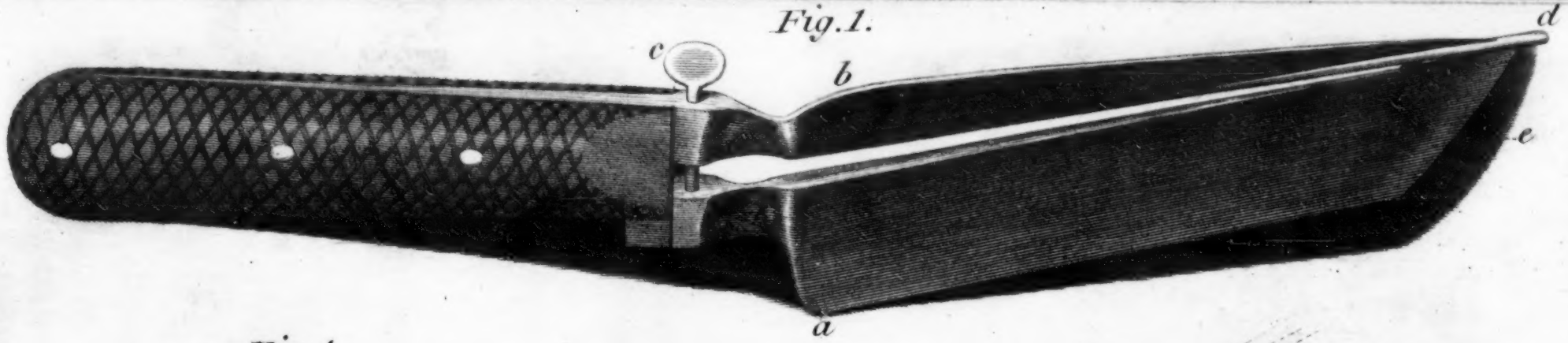


Fig.2.

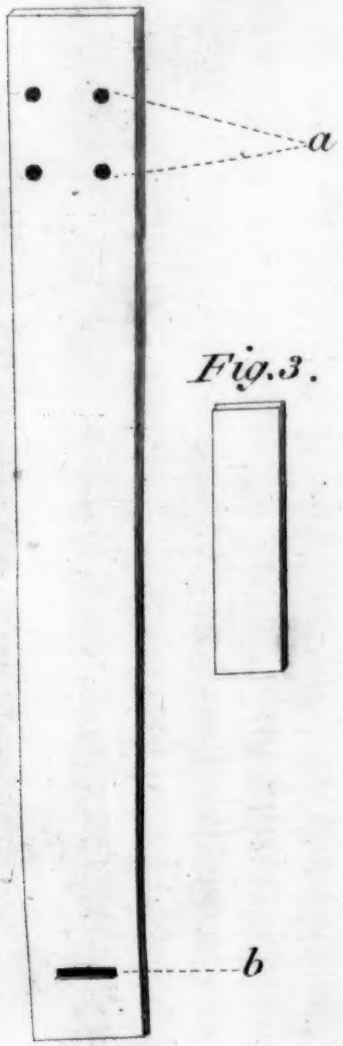


Fig.3.

Fig.4.

Fig.2.

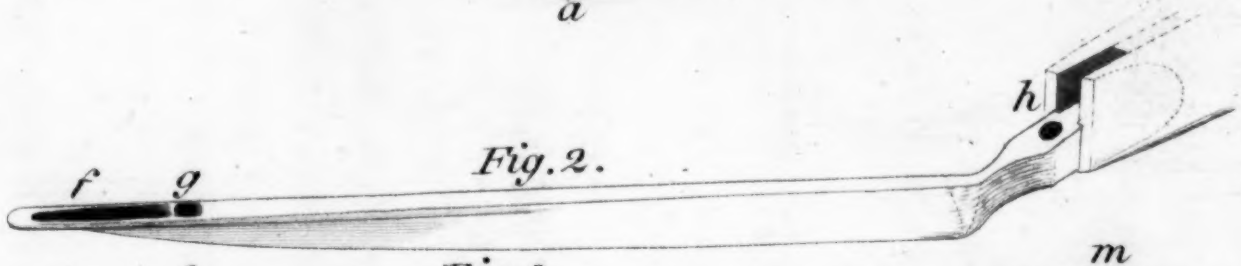


Fig.3.

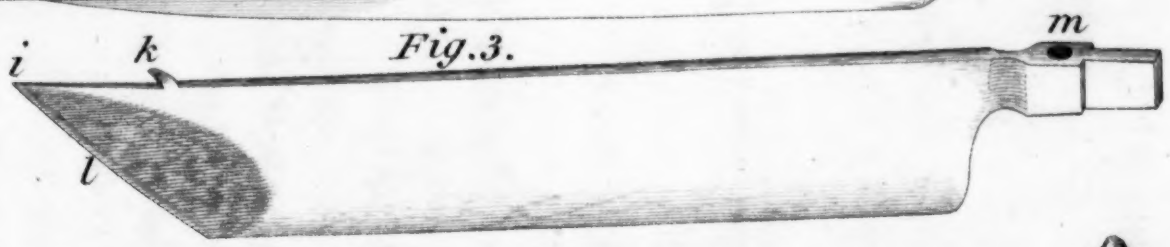
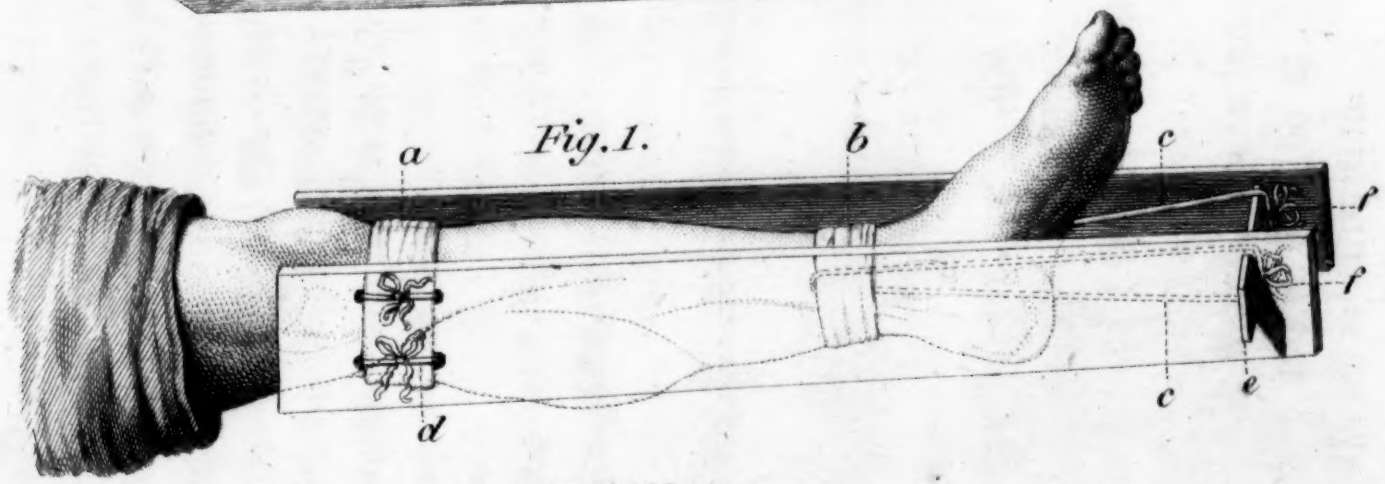


Fig.1.



Engrav'd for the Philad^{a} Medical Museum

Lawson fc.

bleſome to both patient and ſurgeon, and are not well calculated to inſure a ſtraight limb. The method propoſed, poſſeſſes two advantages over any other hitherto adopted: by it, the extenſion can be kept up in compound fractures, whilſt the ſurgeon is applying the neceſſary dreſſings to the wound. The patient therefore is ſaved all that pain which he would have to ſuffer from a removal of bandages, ſplints, &c. as in the common practice. We can alſo, in ſimple fractures, aſcertain merely by turning our eyes towards the leg, the leaſt diſplacement of the bones: when the common ſplints are uſed, and the eighteen-tailed bandage is applied, we are under the neceſſity of removing them to form a correct idea of the ſtate of the limb.

The apparatus which has been recommended, ſome of our firſt ſurgeons have uſed with the happieſt effects. I have witneſſed its ſucceſs in a number of caſes.

It is ſcarcely neceſſary to obſerve, that the application of it would be improper during the exiſtence of inflammation. About the 10th day after the fracture has happened, it will be found moſt uſeful.

JAMES HUTCHINSON.

PENNSYLVANIA HOSPITAL,
Auguſt 6th, 1804.

Of the Uſe of Bliſters in checking the Progreſs of Mortification.

By PHILIP SYNG PHYSICK, M. D.

THE practice of curing eryſipelatous inflammation by the application of a bliſter over the inflamed part, originated, as far as I know, with the late Dr. Joſeph Pfeiffer. From having employed bliſters in the treatment of that complaint with great ſucceſs, I was induced to ſuppoſe ſome years ago, that they might alſo be uſed with advantage in arreſting the progreſs of mortification.

The firſt opportunity I had of applying a bliſter with this intention, was in the caſe of Captain Stokes, a gentleman between forty and fifty years of age, whom I was deſired to viſit, in conſultation with Dr. Ruſh, in January 1803. After an inflammation about the anus, which had been ſuppoſed for ſeveral days by the patient, an attack of piles, a mortification was obſerved to have commenced in the perineum, and on the ſide of the ſcrotum. At my firſt viſit I propoſed the application of a bliſter, to extend from the edge of the mortification in the perineum, backwards over the buttocks; this being agreed to, was immediately applied; the following day, when the bliſter was dreſſed, we were both well ſatisfied with its effect, as it had prevented the mortification from ſpreading backwards; but ſo extenſive was the mortification of the ſkin and anterior part of the ſcrotum, which appeared to extend upwards in the courſe of the ſpermatic chords towards the abdomen, that his recovery was not to be expected. After a few days he died.

Dr. Ruſh being ſtruck with the good effect of the bliſter in the preceding inſtance, has lately employed the remedy in a caſe of mortification, the hiſtory of which is contained in the following letter:

Dear Sir,

I WAS called upon by Dr. Bleight, on the 29th of laſt July, to viſit with him, Captain R. A. who, in conſequence of applying a handful of the *polygonum perſicaria*, inſtead of paper, to a common uſe, after going to ſtool, was affected with an inflammation in the extremity of the rectum, which extended around the adjoining parts, and along the perineum, ſo as to affect the integuments of the ſcrotum. Bleeding and other depleting remedies had been uſed to no purpoſe, in order to cure it: a partial mortification had taken place. I concurred with Dr. Bleight in adviſing leeches to the ſound parts; and recollecting the high terms in which you ſpoke of the efficacy of

bliſters in preventing the progreſs of mortifications, in our conſultation, in the caſe of Captain Stokes, in January 1803, I adviſed their application to all the diſeaſed parts which had not put on a gangrenous appearance. They had the wiſhed-for effect; the mortified parts were afterwards cut away, or gradually ſloughed off; and, under the faithful and patient ſubſequent attendance of Dr. Bleight, the Captain happily recovered, and now enjoys his uſual health.

In the moſt dangerous ſtate of his diſeaſe, we gave him bark; but its diſtreſſing effects upon his ſyſtem obliged us to lay it aſide.

From, dear Sir,
Your ſincere Friend,
BENJAMIN RUSH.

Dr. P. S. Physick.
Nov. 15*th*, 1804.

On the 24th October 1804, I was deſired to meet Doctors S. P. Griffitts, Wiſtar, and Strattan, in conſultation, concerning the caſe of Mr. Charles French, who was afflicted with a mortification of the foot, which was advancing daily upwards, unchecked by the liberal uſe of the bark. On the 27th October, I propoſed the application of a large bliſter round the leg, below the knee; this being agreed to, was applied in the evening; when dreſſed the next morning, it was obſerved that the mortification had not increaſed:—encouraged by the benefit derived from it, I propoſed on the 29th, the application of a ſecond bliſter, to cover all the living parts below the edge of the firſt. This bliſter alſo roſe well;—in a few days a diſtinct line of ſeparation between the living and dead parts was obſerved; the bliſters were dreſſed with a mixture of baſilicon and ſpirit of turpentine. I avoid relating further particulars of this caſe, as Dr. Griffitts propoſes to publiſh a circumſtantial detail of it.

Since writing the above, I have been favoured with the following hiſtory of a caſe from Dr. Church, containing addi-

tional teſtimony in favour of the uſe of bliſters in arreſting the progreſs of gangrene.

" ON Monday, ——— of November, I was deſired to viſit Mrs. Y. in the country, about ſixty years of age, of a fair complexion, and delicate conſtitution; has had ſeveral children, and heretofore enjoyed good health.

" She had been taken on Saturday with frequent chills, with irregular febrile fluſhings, pain in the limbs and head, which continued increaſing for nearly thirty-ſix hours before I ſaw her, when ſhe was delirious, with fluſhed countenance, irregularly frequent and tenſe pulſe, tongue furred, reſpiration frequent, with great general uneaſineſs.

" The loſs of ten or twelve ounces of blood, with a ſaline cathartic, abated in ſome degree the febrile ſymptoms. The delirium ſtill continuing, in the evening, bliſters to the wriſts, with a continuation of the ſaline mixture, produced an alleviation of all the ſymptoms, ſo that towards morning ſhe had a few hours ſleep. When ſhe awoke, ſhe was perfectly collected, complaining of great foreneſs in her body and limbs, particularly in one ankle, which ſhe ſaid was painful; her ſkin was cool, and her pulſe frequent but ſoft, eaſily yielding to the leaſt preſſure. The family informed me that the ankle ſhe complained of, had had an ulcer on it for fourteen years, which had been brought on by a ſlight injury after one of her deliveries; that it had within the laſt two weeks been healed. On examination, the ulcer appeared to have been of the ſize of a dollar, above the internal ankle, which was now quite livid, with ſome ſwelling around the edges, having the appearance of a veſication, and a deep purple bluſh, extending an inch or two beyond it, attended with a diſtreſſing burning ſenſation. The leg at this time was quite cool and ſomewhat ſwelled.

" The medicines ſhe had been taking were omitted, and the tonic cordial plan ſubſtituted: the bark, wine, and opium were adminiſtered freely, and cataplaſms of bark with yeaſt, were applied to the part and changed frequently.

" This treatment was followed until Thurſday, with an increaſe of the lividity and veſications on different parts of the ankle, filled with a bloody-coloured fluid.

" On Thurſday the appearances were indeed unpleaſant; the lividity of the ankle had extended, and the deep purple colour of the ſkin was near the middle of the leg, with very great tumefaction. The pulſe was frequent, ſkin cool, tongue dry, and much apparent inſenſibility of the limb. The bark was ſtill continued internally, and the fermenting cataplaſm of powdered carbone, with meal, honey, and yeaſt, was applied in large quantities over the part affected, and was repeated or changed very frequently. This plan was rigidly adhered to all Thurſday and Friday, changing the bark (which now had been taken in ſuch quantities as to ſicken the ſtomach), for ſome other tonic.

" The deep and burning redneſs, ſtill, however, progreſſed towards the knee, with an increaſe of thoſe unpleaſant veſications; the pulſe on Saturday was much more frequent; the ſkin cool; tongue dry, and covered with a dark-coloured cruſt; very great reſtleſſneſs, with conſtant incoherent muttering.

" In this ſituation I recollected a converſation I had had ſome time ſince with Dr. Phyſick, in which he mentioned the good effects he had experienced from bliſtering, in a caſe of gangrene. The critical and dangerous ſtate of the patient required ſomething to be promptly done. The bliſter was propoſed with conſiderable heſitation, as I could not recollect in what ſtage or what ſpecies of gangrene Dr. Phyſick had uſed it.

" A large bliſter was, however, applied on the inſide of the leg below the knee, one part on the healthy portion of the leg, and the remainder immediately on the diſeaſed part. After twelve hours it roſe very well, and, contrary to what I dreaded, aſſumed a very pleaſing aſpect, and without the leaſt increaſe of diſeaſe. The pulſe ſtill continued frequent and the ſkin cool, although the patient in every other reſpect was much more compoſed.

" On Sunday, the leg was much more favourable; the lividity and veſication had not increaſed, and the tumefaction which was very conſiderable, had ſubſided much. The foot,

though much swelled before, did not, until this period, shew the least disposition to take on diseased action. It now became covered with the deep purple shining appearance, with a distressing burning sensation, which, together with the increased tumefaction, occasioned much uneasiness. The bark, with elixir of vitriol, was persevered in freely, and from the pleasing effects of the blister, in arresting the rapid progress of the disease in the leg, I applied a large one covering all the upper part of the foot, including that part of the ankle where the disease first began. The effects were equally as pleasing as in the first instance, producing an almost immediate cessation of the progress of the disease.

" The parts of the ulcer where the disease first began, separated to some depth; the cuticle from below the knee separated, and in some places on the leg; and the separation extended even through the cutis and adipose membrane.

" The tumefaction of the leg gradually diminished, and the patient is completely free from every danger."

Impressed with an idea that blisters will be often found useful in preventing the progress of mortifications, I have been induced to publish the preceding cases as early as possible.

PHILIP SYNG PHYSICK.

Philadelphia, 24th November, 1804.

An Account of the Effects of LABOR *in the Cure of Pulmonary Consumption. In a Letter from the* Rev. DR. SAMUEL K. JENNINGS, *of Bedford County, Virginia, to* DR. BENJAMIN RUSH.

DEAR SIR,

THAT theory only is to be considered a rational one, which is supported by facts, and will admit of the most extensive practical utility. If the following facts can be of any service to you, it will afford me singular satisfaction to have communicated them.

I myſelf furniſh the firſt caſe. My maternal grandmother, my mother, five of her ſiſters, and four of her brothers, my ſiſter being my mother's firſt child, and a brother next in ſucceſſion to me by birth, all of them have been ſwept off the ſtage of life in the courſe of my recollection, by the fatal diſeaſe Phthiſis Pulmonalis. From my youth up to the age of twenty-nine, I was ſenſible of great debility of the lungs, and was never, during that time, able to call aloud, read, or ſing, with the eaſe which is common to other people. I had generally lived a ſtudious and ſedentary life, except that I had been the two laſt years engaged partially in the practice of phyſic. An offer was at that time made me to take charge of an academy. For the ſake of gaining more leiſure for the purpoſe of reading and ſtudy, I accepted the offer. In the mean time I had been three years occaſionally employed in ſpeaking publickly upon religious ſubjects. From this laſt engagement I conſidered my lungs to have gained ſome ſtrength. It followed, however, that ſtudy and confinement did leſs agree with me than formerly. I could perceive a daily declenſion, and at length, having been caught in a moderate rain, I was ſeized with a very ſevere and obſtinate cough. I was bled again and again to no purpoſe. After conſiderable depletion, opium was tried, but in vain. Debility, the cough, and every inflammatory ſymptom increaſed. I had recourſe to riding, took a journey of ſeveral weeks, and continued to let blood as often as the pains were ſevere, but ſtill in vain. In the mean time I obtained your Inquiries, and immediately turned my attention to the ſubject which moſt concerned me. After having carefully read that part of the work, I purſued the following plan, viz. I let blood, moderately, every third day, eſpecially if affected with inflammatory ſymptoms, until, with the previous blood-lettings, I had been bled fifteen times in the courſe of five weeks. By this time, I was much reduced, but my cough was no better. I then had recourſe to the uſe of the AXE, and to LABOR of the ſevereſt kind. I could not at the time repeat ten ſtrokes without reſt. It would ſeem in the firſt inſtance to increaſe my cough. The reſult was, that in two weeks I was nearly recovered. Finding much amend-

ment, I grew remiſs in my labor, and in a few weeks relapſed, and was nearly as ill as before, for I loſt ground rapidly in the ſecond inſtance. Two bleedings and ſimilar LABOR, however, finally reſtored me to good health, and I can now ſing aloud, and on a ſharp and high key; can ſpeak two hours together; and, in one word, I conſider myſelf freed from every ſymptom of that diſorder.

My wife furniſhes a ſecond recent caſe. Her mother, and one of two only ſiſters, have died of the ſame diſeaſe very lately. She was in her youth an active and induſtrious woman, and of courſe took a good deal of laborious exerciſe. But for ſeveral years paſt ſhe has been declining, ſo that, from a fleſhy and healthy woman, ſhe became a pale, ſickly, emaciated, valetudinarian. The laſt ſummer ſhe brought a fine ſon. By ſuckling him ſhe declined in an unuſual degree; was at length taken with a cough, chills at noon and in the evening, night-ſweats, &c. I bled her as often as I could find her pulſe tenſe; adviſed her (contrary to her inclinations) to uſe SERVILE LABOR. She took my advice. Her cough is nearly removed, and I have no doubt but ſhe will recover.

I ſhould not have conſidered theſe caſes of ſufficient importance to call your attention, had it not been for the hereditary circumſtances attending them.

In my own caſe they are indeed ſtriking, for not only the perſons named above, but a number of my maternal couſins have died of the ſame diſeaſe.

I ſhall offer a ſhort reflection or two, drawn from my own caſe. In the firſt place, I am perſuaded that hard labor, if employed in an early ſtage, can cure the hereditary prediſpoſition in ſome caſes.—Hence I further conclude, that conſumptive parents ought never to chooſe ſedentary or light employments for their children.

Secondly, I conclude that although a trotting horſe may afford ſufficient exerciſe for many, yet labor will be far more ſucceſsful.

And laſtly, in all caſes, the labor ſhould be ſuch as to require conſiderable efforts on the part of the patient. I labor-

Fig.1.

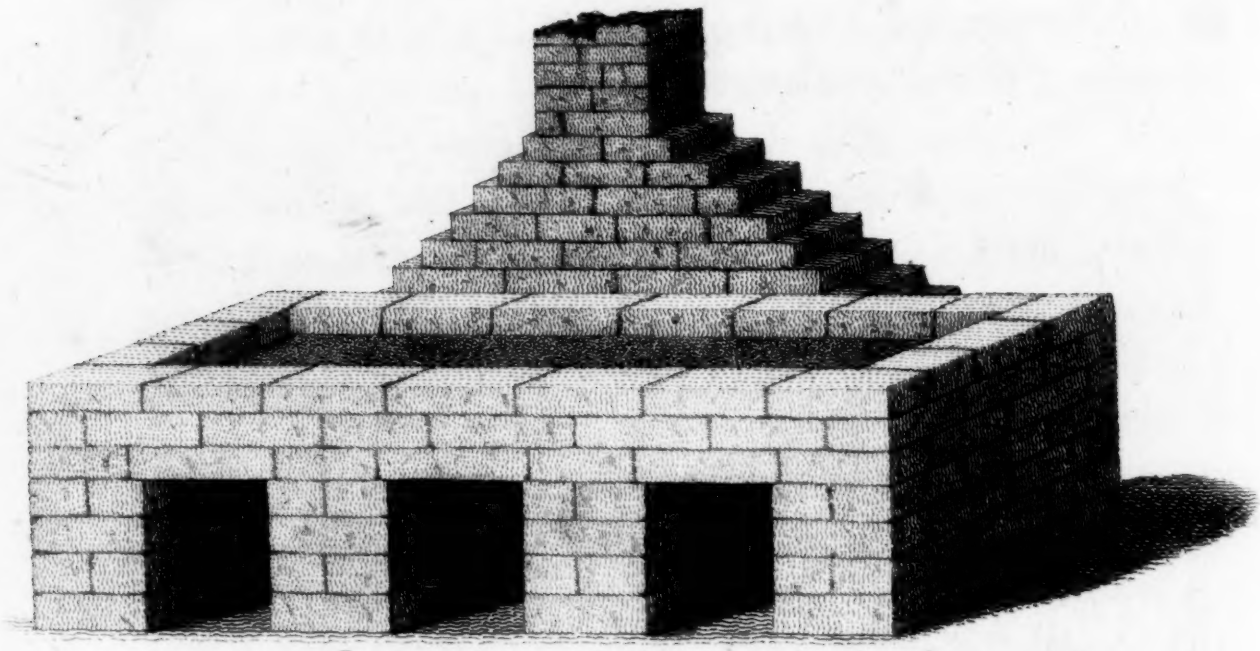


Fig.2.

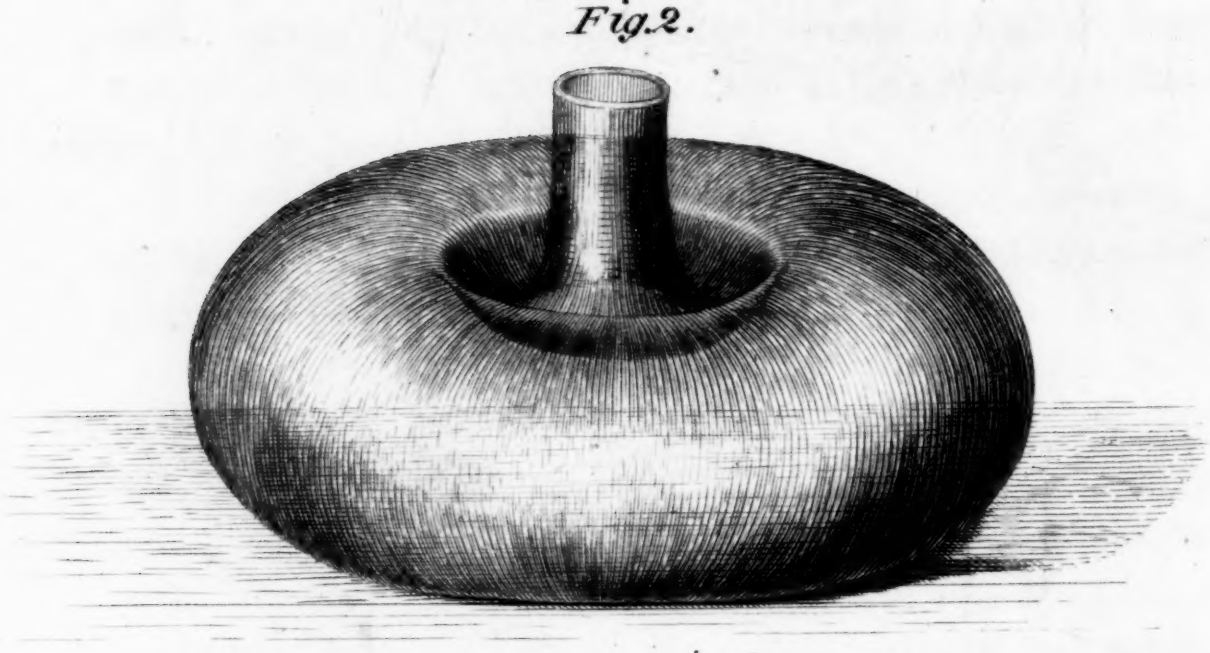
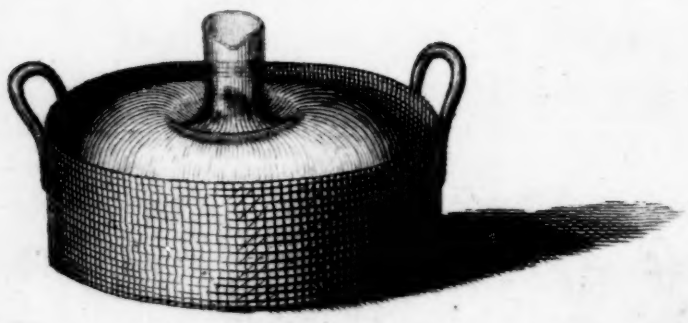


Fig.3.



Engravd by Lawson for the Philadª Medical Museum.

at intervals, and rarely with sufficient intervals to refresh
myself by rest.

I am sincerely,

Sir, your most obedient,

SAMUEL R. JENNINGS.

October 25th, 1804.

To the Editor of the Philadelphia Medical Museum.

Observations on the Mode of Refining Camphor. By Thomas Y. Porter, M. D., Surgeon of the Observatory in the Province of Pennsylvania, &c.

November 16th, 1804.

SIR,

I shall afford sincere pleasure to every true friend of America, to view the establishment and rapid increase of several branches of manufactures, in the United States.

How long have we known both Europe and Asia to be the sole, for many articles, to purify or fabricate them, requiring a large capital, and a very high degree of chemical knowledge.

Among the subjects which are thus entitled, as corresponding to the above, is the obtaining of refined camphor from the crude article.

The crude drug is imported by our merchants from China, where it is bought for sixty and twenty-five cents per lb. in this country, from a dollar to a dollar and eleven cents per pound.

Some years since, the refining of this article, was confined to the druggists in the United States, and at this time there are but three, or eight persons, who accurately understand it, all of whom keep it a profound secret.

The method was for a long time known only to the Dutch, who had complete monopoly, in proportion as they increased with the art of refining it.

I do not range it among the elementary works of Fourcroy, Chaptal, Lavoisier, Cadet, Scheele, or Thomson, nor in any of the late Dispensatories.

ed *continually*, and rarely with ſufficient intervals to refreſh myſelf by reſt.

I am ſincerely,

Sir, your moſt obedient,

SAMUEL K. JENNINGS.

October 25th, 1804.

To the Editor of the Philadelphia Medical Muſeum.

Obſervations on the Mode of Refining Camphor. By JAMES WOODHOUSE, M. D.. *Profeſſor of Chemiſtry in the Univerſity of Pennſylvania, &c.*

November 26th, 1804.

SIR,

IT muſt afford ſincere pleaſure to every true friend of America, to view the eſtabliſhment and rapid increaſe, of ſeveral branches of manufactures, in the United States.

Too long have our citizens been dependent upon other nations, for many articles, to purify or fabricate which, requires but a ſmall capital, and a very ſlight degree of chemical knowledge.

Among the ſubjects which we may conſider as coming under this head, is the obtaining of refined camphor, from the raw material.

Crude camphor is imported by our merchants from Canton and Batavia, where it is bought for fifty and ſeventy-five cents, and ſells in this country, from a dollar, to a dollar and eleven cents a pound.

Eight years ſince, the refining of this article, was confined to two druggiſts in the United States, and at this time there are not more than eight perſons, who accurately underſtand the proceſs, all of whom keep it a profound ſecret.

The method was for a long time, known only to the Dutch, who value and conceal all diſcoveries, in proportion as they are connected with the art of making money.

It is not taught in any of the elementary works of Fourcroy, Chaptal, Lagrange, Gren, Nicholſon or Thomſon, nor in any of the Medical Diſpenſatories.

A tolerably accurate account of the proceſs, may be ſeen in the French Encyclopædia, and in the twelfth volume of Ars & Metiers, by De Machy.

The apparatus neceſſary for a refinery is ſimple, does not coſt much, and occupies little room.

It conſiſts of a furnace, ſupporting a ſand-bath, glaſs veſſels, and iron, copper or earthen pans.

I. Of the Construction of the Furnace.

A furnace ſufficiently large for one active and induſtrious man to attend, will occupy the ſpace of eight feet nine inches in length, and two feet ſix inches in breadth. It muſt be made of ſeven caſt-iron plates, half an inch thick, thirty inches long and fifteen broad. Theſe plates are to be placed upon eight piles of bricks, parallel to each other, and nine inches apart. The bricks are to be ten inches high, thirty long, and ſix broad.

Great care muſt be taken, that the lower ſides of the plates meet each other exactly midway on the upper ſide of the bricks, which ſhould be well covered, with a thick bed of mortar. Bricks ſerve to confine the ſand. When the furnace is connected with a wall, there is no occaſion for more than a ſingle row of them: and to obtain a conſiderable draught of air a chimney ſhould be carried from the fourth plate, with an aperture four inches in diameter, and the flues of the third and fifth plate, may communicate with this chimney. Two ſeparate flues, may be carried from the ſecond and ſixth plates, and the firſt and ſeventh ſhould enter the ſecond and ſixth.

The chimney, if convenient, may be made to enter into that of the houſe, but if not, it ſhould be about fifteen feet high.

II. Of the Glass Vessels.

The veſſels are procured at a glaſs-houſe, and are made of green glaſs. They ſhould be blown as thin as an oil flaſk. They are of a circular form, ſhaped flat like a turnip, and have a neck from one to three inches high, with an aperture, from half an inch to one inch in diameter. Their bottoms ſhould be eleven inches broad, and the top ought to be four inches from the bottom.

They coſt twenty-five dollars a hundred in Philadelphia.

III. Of the Pans.

Fourteen pans may be made of iron, copper or earth. Sheet iron is the beſt material. They ſhould be round, one foot in diameter, with a rim pecked on four inches and a half high, and ought to have two ſmall handles. They coſt one dollar a-piece, in this city.

Having prepared this neceſſary apparatus, the next thing is to make uſe of it, in ſuch a manner, as to refine the camphor.

Having taken the article out of the tubs, the glaſs veſſels are to be filled two-thirds full of it, and the apertures in the necks, ſlightly ſtopped, with paper or cotton plugs. They are then to be placed on the bottom of the pans, and covered near to the baſe of their necks with ſand.

The pans, holding the veſſels containing the camphor, are to be carried to the ſand-bath, and ſurrounded near to the top of the rim with ſand.

A gentle fire is to be kindled in the furnace, at four o'clock in the morning, and gradually increaſed, until the camphor melts, which it does when it arrives at 304° of Fahrenheit's thermometer. It will firſt riſe in flowers, which will diſſolve, and run down the ſides of the veſſel. When it has melted, or is boiling, the glaſs is to be elevated in ſuch a manner that the hot ſand, may reach only to the middle of its belly, in order that the cool air may be admitted to the upper ſurface of the glaſs, to congeal the camphor as it ſublimes.

Having kept it in a liquid or boiling ſtate, from eight to ten hours, the refined camphor will be found, adhering to the upper ſide of the veſſel, and is to be taken from it by breaking the glaſs while hot, or it may be kept until cool and then broken. The glaſs is eaſily ſeparated from it, by means of a knife.

The foul parts which adhere to the bottom of the glaſs, and which cannot be eaſily parted from it, are to be broken into pieces, and ſublimed a ſecond time, with an additional ſupply of camphor.

When the crude camphor is of a white colour, or contains little foreign matter, no addition is to be made to it; but when

it is brown or black, one ounce of ſlacked or quick lime, is to be mixed with every three or four pounds of it. The utility of lime in this operation, is noticed by Margraff.

One man can refine and pack up, from eighteen to twenty-five pounds every day.

If any of the glaſs veſſels holding the melted camphor ſhould crack, which ſometimes happens, and which is diſcovered, by the flowers riſing into the air from their ſides and tops, the pans containing it are to be immediately removed to a cool place; and if the camphor is found mixed with the ſand, the whole is to be put into other veſſels, and the operation conducted as before.

The loſs in refining one hundred weight of this article cannot be accurately aſcertained, as it depends upon the purity of the crude material, and the care in conducting the proceſs. It cannot be very great.

Profeſſor Robertſon, in a note to Dr. Black's Chemiſtry informs us, that in a manufactory in Holland, he ſaw more than one hundred veſſels in a furnace at one time, and that there was but a moderate ſmell of camphor in the room.*

Hoping that this endeavour to make a very uſeful proceſs, generally known in the United States may ſucceed, and wiſhing you ſucceſs in the eſtabliſhment of your Medical Muſeum.

I remain, dear Sir,

Yours ſincerely,

JAMES WOODHOUSE.

References to the Plate.

Fig. I. Is a ſection of the furnace, ſupporting a ſand-bath. The aſh-pit may be ſeparated, from the place where the fuel is lodged, according to the fancy of the manufacturer. The fuel may be either wood, charcoal or pit-coal.

Fig. II. Is the glaſs veſſel.

Fig. III. Is the iron pan, containing one of the veſſels.

* Black's Chemiſtry, Vol. II. 351.

MEDICAL AND PHILOSOPHICAL REGISTER.

FOREIGN AND DOMESTIC.

THE following abſtract of Meteorological Obſervations for ſix ſucceſſive years, has been formed, with conſiderable trouble, on the plan of the ingenious Profeſſor Playfair, as detailed in the ſecond part of the fifth volume of the Tranſactions of the Royal Society of Edinburgh. I have, however, made ſix diviſions in each month, of five days each, (except the laſt of thoſe containing thirty-one days, and of February,) inſtead of three of ten days, as Profeſſor Playfair has done. By making the diviſions in theſe, twice the number, I have conſidered it leſs neceſſary to extend the tables in other reſpects, as is done in my model.

The column immediately following that of the month and its diviſions, ſhews the higheſt degree of Fahrenheit's thermometer during each diviſion. The next column points out the loweſt degree for the ſame period. The third column gives the mean temperature of the whole number of obſervations of each diviſion; and the fourth is the mean temperature of all thoſe means, or of the whole month.

The barometer follows, in like manner pointing out the higheſt, loweſt, and mean points of the mercury of each diviſion, and the mean of thoſe means, or of the whole month, in inches and hundredth parts.

For the moſt part, theſe inſtruments were noticed three times a day, from 6 to 8 in the morning, from 2 to 3 P. M. and at 10 at night.

The column of winds, points out the prevailing ones of the month, placed in the rank of their proportions, and none are noticed which did not exceed ten, in the monthly obſervations.

The proportion of clear and cloudy weather of each month, is attempted as nearly as poſſible, by figures. In ſome the proportions are accurate; in others, I might have extended the decimals to ſeveral figures; but ſuch accuracy being unneceſſary, I have purſued it no further than one point.—The number of times of rain, hail, ſnow, &c. is only given as occurring at the hours of obſervation, without particularly ſpecifying each: for as it often rained, &c. at other hours, when I did not notice it, this would at all events be imperfect. In ſome inſtances, the quantity of rain which fell in the month, was not attended to, and others, I have been unable to ſtate, from having unfortunately loſt, or miſlaid them, in ſeveral times removing.

The thermometrical and barometrical obſervations having been rendered imperfect, from the ſame cauſe, I have been indebted for their completion to the kindneſs of Dr. Samuel Duffield, who has for ſeveral years kept a regular ſeries.

For theſe reaſons I do not mention the ſituation of the inſtruments employed, which has been various; yet they have always been guarded from the ſun, and its immediate reflection. It is however believed, that the obſervations are tolerably correct; and, as we have never had ſo long a ſucceſſion of them publiſhed, it is preſumed they may prove intereſting at a future day, to aſſiſt in determining what actual changes take place in our climate.

Editor.

Abstract of Meteorological Observations for 1798.

Months in divisions	THERMOMETER. Highest.	Lowest.	Mean of division	Mean of month	BAROMETER. Highest. In.dec.	Least. In.dec	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
1	39	31	34.6		30.03	29.65	29.87			Clear 5.
2	38	24	33.4		30.60	29.70	30.13		SW	Cloudy 4.
3	47	22	33.8	33.1	30.15	29.83	30.04	29.99	NW	—
4	53	25	37.4		30.35	29.80	30.07		NE	Rain, Snow,
5	40	18	30.3		30.03	29.55	29.84			Hail, &c.
January. 6	37	18	29.6		30.30	29.40	29.99			6 times.
1	44	28	37.0		30.00	29.60	29.82			Clear 5.
2	40	12	24.5		30.33	29.60	30.05			Cloudy 4.
3	36	26	31.7	32.3	30.13	29.80	29.91	29.99	NW	—
4	35	20	27.3		30.50	30.05	30.34		NE	Rain, &c.
5	42	34	37.2		30.16	29.75	29.94			7
February. 6	41	31	36.2		30.05	29.80	29.92			
1	42	30	35.7		30.25	29.70	30.01			Cloudy 5.
2	56	32	41.5		30.33	29.80	29.95		SW	Clear 4.
3	56	34	44.5	43.2	29.90	29.50	29.73	29.86	NW	—
4	46	35	39.8		30.13	29.65	29.90		NE	Rain, &c,
5	52	38	45.0		29.95	29.15	29.53			13
March. 6	70	40	52.8		30.25	29.70	30.05			
1	73	38	47.7		30.23	29.90	30.03			Clear 5.8
2	60	44	52.0		30.20	29.90	30.07			Cloudy 4.6
3	55	40	50.0	53 0	29.65	29.45	29 52	29.96	NE	—
4	58	30	41.4		30.15	29.77	29.99		SW	Rain, &c.
5	69	51	58.9		30.30	29.70	29.96			7
April. 6	76	58	68.3		30.30	30.15	30.19			
1	80	64	69.6		30.10	29.70	29.94			Clear 6.6
2	70	58	64.9		29.90	29.65	29.81		NW	Cloudy 3.
3	68	52	59.0	65.7	30.04	29.80	29.94	29.98	SW	—
4	72	56	64.4		30.45	29.90	30.19		SE	Rain, &c.
5	78	61	71.5		30.45	29.80	30 15		NE	5
May. 6	70	60	64.8		30.30	29.65	29.89			
1	85	65	73.1		29.78	29.64	29.69			Clear 6.1
2	84	66	71.1		30 05	29.66	29.83		NW	Cloudy 4.2
3	86	62	73.2	74.1	29.96	29.84	29.96	29.80	SW	—
4	85	64	73 9		30.07	29.54	29.90		NE	Rain, &c.
5	90	71	78.6		29.83	29.56	29.70		SE	6
June. 6	90	69	75.1		29.84	29.63	29.76			

February 8. River froze over, though several vessels went down the 5th and 7th.—The ice began to drive the 13th.—It was again fast the 19th, and drove the 21st.—By the 25th it was nearly gone, and several vessels went down.

March 13. Herrings in market—Shad the 20th.

April 20. First thunder storm, with hail and rain.

July 1. 2. 3. Unusually hot.—On the 2d in some places the therm. was said to stand at 98°.—It rose to 106° in the direct rays of the sun.—At 4 P. M. of the 3d, it stood at 94°—at 6 a violent storm which sunk it to 80°.

September 28. Frost in the country.—30th, in town.

October 31st. First snow this season.

December 12. Navigation obstructed.—Open the 14th.—Closed again 16th.

Abstract of Meteorological Observations for 1798.

Months in division		THERMOMETER. Highest.	Lowest.	Mean of division.	Mean of month.	BAROMETER. Highest. In.dec.	Least. In.dec.	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
July.	1	96	73	81.4	76.4	29.90	29.72	29.77	29.84	NW SW	Clear 9. Cloudy 3.6 — Rain, &c. 5
	2	87	65	75.0		29.94	29.64	29.83			
	3	88	60	71.9		29.95	29.71	29.83			
	4	84	60	70.0		29.98	29.71	29.86			
	5	91	68	78 9		30.08	29.86	29.95			
	6	94	71	81.3		29.93	29.82	29.85			
August.	1	94	74	83.0	81.6	30.02	29.72	29.83	29.96	SW NW E W	Clear 3.6 Cloudy 3. — Rain, &c. 6
	2	96	75	85.1		30.09	29.73	29.93			
	3	95	74	82.0		30.11	29.73	29.99			
	4	93	77	83.2		30.13	29.99	30.04			
	5	89	67	79.8		30.2[illegible]	29.97	30.06			
	6	91	65	76.8		30.00	29.90	29.94			
September.	1	79	66	71.2	67.8	30.09	29.75	29.99	29.99	NE NW SW	Clear 5.5 Cloudy 2. — Rain, &c. not noted.
	2	73	61	67.0		30.00	29.76	29.91			
	3	79	61	70.7		30.25	30.00	30.13			
	4	81	70	75.0		30.05	30 00	30.01			
	5	74	57	67.0		30·03	29.90	29.94			
	6	72	45	56.2		30.10	29.85	30.01			
October.	1	70	51	61.8	57.2	30.33	30.00	30.15	30.01	SW NE NW	Cloudy 5. Clear 4. — Rain, &c. 9
	2	68	54	61.2		30.05	29.70	29.90			
	3	65	53	58.1		30.35	30.13	30.27			
	4	66	50	57.4		30.16	30.02	30.10			
	5	66	50	58.8		29.90	29 62	29.80			
	6	68	28	46.0		29.95	29.65	29.84			
November.	1	42	30	37 4	41.1	30.12	29.73	29.83	30.04	NW SW NE	Clear 5. Cloudy 3.5 — Rain, &c. 5
	2	45	32	38.0		30.30	30.10	30.18			
	3	60	30	45.6		30.36	29.70	30.12			
	4	57	40	49.6		30.05	29.56	30.03			
	5	39	25	35.4		30.46	29 56	29 94			
	6	48	30	40.6		30 50	29.89	30.18			
December.	1	47	24	41.4	31.5	30.21	29.40	29.78	29.94	NW SW NE W	Clear 8. Cloudy 5. — Rain, &c. 17
	2	40	24	30.1		30.29	29.40	29.96			
	3	41	21	29 1		30.21	29.73	29 98			
	4	34	20	26.1		30.13	29.64	29.96			
	5	35	18	27.2		30.48	29.73	30.10			
	6	42	24	35.5		30.45	29.22	29.87			

Range of thermometer during this year,	Degrees	84.
Mean height of thermometer for the year,		54.96
Greatest variation of the thermometer in 24 hours,		22.
Range of Barometer during the year,	Inches	1.45
Mean height of barometer for the year,		29.97
Rain, &c. in June, July, August, November and December,		14 5-12
——————the other months unobserved.		
Rain in December,		6 1-2
Rain in November,		1

Abstract of Meteorological Observations for 1799.

Months in divisions.	THERMOMETER. Highest.	Lowest.	Mean of division.	Mean of month.	BAROMETER. Highest. In.dec.	Least. In.dec.	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
1	38	8	24·9		30.69	30.00	30.36			Clear 2.
2	46	9	27.2		30.58	30.20	30.39		NW	Cloudy 2.
3	56	33	40.5	33·7	30.40	30.04	30.18	30.16	NE	—
4	57	26	38.2		30.25	29.83	30.08		SW	Rain, &c.
5	57	26	36.2		30.33	29.83	30.07			13 times
6	43	22	35·3		30.21	29.61	29.91			
1	50	19	35.0		30.31	29.62	29.92			Clear 7.4
2	60	16	36.0		30.68	29.40	30.20		NW	Cloudy 3.
3	52	26	38·7	32·9	30.27	29.60	29.90	30.00	SW	—
4	41	17	32·3		30.35	29.69	30.00		NE	Rain, &c.
5	34	8	24·5		30.30	29.49	30.00			11
6	45	16	31.2		30.28	29·74	30.02			
1	40	5	28.6		30.37	29.77	30.10			Clear 9.4
2	53	17	40.0		30.34	29.50	29.85			Cloudy 5.
3	41	16	29.0	38.8	30.54	29.47	30.09	29.92	NW	—
4	48	26	37.6		30.17	29.44	29.90		SW	Rain, &c.
5	68	36	48.2		30.35	29.77	30.06		NE	17
6	78	28	49 4		30.04	29.10	29.64			
1	70	30	45·4		30.00	29.47	29.62			Clear 8.3
2	76	30	51·2		29.94	29.40	29.68			Cloudy 3.6
3	79	38	55·7	54·2	30.15	29.90	29.96	29.71	NW	—
4	83	34	60.7		29.83	29.53	29.67		SW	Rain, &c.
5	74	44	53·1		29.92	29.41	29.72			7
6	76	52	59·4		30.01	29.35	29.66			
1	64	42	50.6		30.07	29.64	29.88			Clear 6.9
2	80	48	56.4		30.21	29.38	29.72			Cloudy 2.6
3	82	46	61·5	61·1	30.00	29.50	29.77	29.78	NW	—
4	76	54	61·5		30.09	29.50	29.89		SW	Rain, &c.
5	82	52	69·3		30.05	29.44	29.67			7
6	80	60	67·5		29.95	29.60	29.77			
1	78	54	64.6		29.92	29.63	29.78		SW	Clear 9.
2	78	62	66 5		29.94	29.18	29 63		NW	Cloudy 5.
3	86	64	73·5	71·9	30.07	29.35	29.68	29.76	SE	—
4	90	68	72.2		29.96	29.69	29.81		W	Rain, &c.
5	92	68	79·2		29.96	29.79	29.89		S	7
6	89	68	75·5		29.96	29·74	29·77			

January 5. Ink froze in the stand.—River fast after floating since the 16th last, and passable. Rapid thaw 9th.—Ice floats 13th.—Several vessels went down 16th.—Young grasshoppers found alive and numerous near Schuylkill 22d.

February 25. River fast.—Open 27th.

March 5. River froze over—but soon floated.—9th, a vessel came up after night—and more the 10th.—14th, snow a foot deep.—23d, herrings in market.—25th, shad.

April 20. Asparagus in market.

September 23. White frost and thin ice in the country.

November 26. Light fall of snow and hail.

December 14. General Washington died.—26th, much floating ice after several days thaw.

Abstract of Meteorological Observations for 1799.

Months in divisions.		BAROMETER. Highest.	Lowest.	Mean of division.	Mean of month.	THERMOMETER. Highest. In.dec.	Least. In.dec.	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
July.	1	84	70	77·7		29.97	29.72	29.82			Clear 5.
	2	83	68	75.6		29.86	29.57	29.65		SW	Cloudy 3.
	3	84	66	77·1	76.2	29.92	29.48	29.66	29.73	NW	—
	4	80	68	74·0		29·77	29.66	29·71		NE	Rain, &c.
	5	84	64	73.8		29.86	29.65	29.78			6 times.
	6	86	66	79·3		29.80	29.56	29.78			
August.	1	85	71	75.2		29.77	29.59	29.63			Clear 2.
	2	84	72	78.0		29.84	29.55	29.74		SW	Cloudy 1.
	3	82	72	77·0		29.70	29.48	29·58		NE	—
	4	81	64	71·9	74·5	29·94	29.53	29.69	29.72	NW	Rain, &c.
	5	82	63	72.0		30.03	29·73	29·92		W	6
	6	83	68	73·2		29.90	29.66	29 77			
September.	1	84	66	73·9		29.85	29.70	29.72			Clear 5.
	2	70	64	66.8		30.05	29·70	29.93		NE	Cloudy 3·3
	3	85	68	76.6		30.05	29.90	29.95		NW	—
	4	77	63	67.8	67.2	30.10	29.95	30.04	29.94	SW	Rain, &c.
	5	65	50	59.6		30.00	30.00	30.00			13
	6	66	49	58.6		30.15	29·90	30.03			
October.	1	69	48	61.4		30.20	30.00	30.06			Cloudy 4.
	2	64	50	57.6		30.13	29·75	30.01		NE	Clear 3·3
	3	64	55	57·9		30.20	29.85	29.67		NW	—
	4	63	36	49·5	55.0	30.20	29·73	30.00	29.96	sW	Rain, &c.
	5	68	35	49·9		30.40	29·75	30.08			10
	6	64	50	54·0		30.30	29.80	29.97			
November.	1	58	37	48 1		29.96	29.84	29.89			Clear 5.
	2	64	45	53.6		29.84	29.34	29.62		SW	Cloudy 3·2
	3	61	38	47·4		29.82	29.10	29·51		NW	—
	4	68	32	46·7	46.4	29·99	29.42	29.83	29.68	W	Rain, &c.
	5	59	30	48.6		29·99	29.38	29.65			8
	6	40	27	34·2		29·93	29.27	29.58			
December.	1	41	30	36.5		29.90	29.32	29.66			Clear 5.
	2	42	25	37.2		30.15	29·52	29.88		NW	Cloudy 3.6
	3	44	26	33.0		30.08	29.55	29.81		NE	—
	4	35	17	29.7	33.7	30.13	29.42	29.80	29.71	W	Rain, &c.
	5	36	26	30.6		29.84	29.50	29.66		SW	16
	6	43	26	35.2		29·77	29.02	29.49			

Range of thermometer during the year,	Degrees	87.
Mean height of thermometer for the year,		53.15
Greatest variation of thermometer in 24 hours,		32.
Range of barometer during the year,	Inches	1.67
Mean height of barometer for the year,		29.86
Rain &c. fell this year,		42 3-4
Greatest quantity in one month (March, September,)		5 1-2
Least (July,)		1

Abstract of Meteorological Observations for 1800.

Months in diviſions.		THERMOMETER.				BAROMETER.				Prevailing winds.	Weather.
		Higheſt.	Loweſt.	Mean of diviſion.	Mean of month.	Higheſt. In.dec.	Leaſt. In.dec.	Mean of div. In.dec.	Mean of mo. In.dec.		
January.	1	35	25	30.8	31.8	30.04	29.50	29.15	29.59	NW W SW	Clear 9.5 Cloudy 5.1 — Rain, &c. 5
	2	34	13	29.0		30.13	29.70	29.96			
	3	46	30	36.6		30.00	29.40	29.73			
	4	49	28	35.7		29.85	28.94	29.46			
	5	38	25	32.9		30.00	29.44	29.70			
	6	36	10	29.9		30.53	29.70	29.55			
February.	1	39	26	32.8	31.4	30.16	29.37	29.76	29.81	NW W NE SW	Clear 6.7 Cloudy 2. — Rain, &c. 10
	2	36	22	28.8		30.23	29.74	30.05			
	3	36	18	27.5		30.04	29.42	29.78			
	4	38	22	27.6		29.94	29.78	29.87			
	5	48	33	40.0		30.10	29.33	29.73			
	6	34	28	32.1		29.98	29.14	29.71			
March.	1	40	24	32.3	38.7	30.05	29.48	29.91	29.89	NW NE W	Clear 5.1 Cloudy 2. — Rain, &c. 12
	2	48	30	27.9		30.68	29.95	30.28			
	3	49	31	38.4		30.05	29.55	29.82			
	4	54	38	44.4		29.95	29.50	29.81			
	5	52	36	40.2		29.99	29.40	29.80			
	6	61	42	49.0		30.11	29.38	29.76			
April.	1	68	38	54.9	55.9	30.06	29.74	29.95	29.98	NW SW W NE	Clear 7. Cloudy 6.1 — Rain, &c. 10
	2	75	48	57.4		30.19	29.54	29.90			
	3	57	42	50.4		30.15	29.36	29.80			
	4	73	48	60.3		30.37	30.00	30.22			
	5	60	42	51.2		30.17	29.72	29.96			
	6	77	50	61.6		30.23	29.91	30.06			
May.	1	70	48	54.9	61.3	30.27	29.76	30.04	29.95	NE NW SE	Clear 5.1 Cloudy 3.2 — Rain &c. 10
	2	68	48	55.4		30.19	29.77	29.70			
	3	81	58	66.8		30.06	29.61	29.85			
	4	70	58	62.8		30.01	29.83	29.94			
	5	72	53	61.1		30.32	30.02	30.20			
	6	75	58	67.1		30.22	29.82	30.01			
June.	1	80	55	70.5	71.0	30.08	29.75	29.91	29.92	SW NW SE	Clear 9. Cloudy 4. — Rain, &c. 12
	2	79	62	70.2		30.12	29.59	29.92			
	3	85	69	74.6		30.00	29.73	29.82			
	4	73	59	65.5		30.15	29.87	29.97			
	5	80	67	73.0		29.98	29.83	29.92			
	6	83	65	72.7		30.18	29.87	30.00			

January 7. Navigation obstructed by floating ice.—18th, river clear.—29th, frozen over.—30th, ice driving.—31st, a violent snow storm a foot deep.

February 6. A veſſel went down.—17th to 24th, a thaw.—18th, navigation ſtopped by floating ice.—24th, river clear, ſeveral veſſels came up.

March 8. 9. Snow a foot deep.—17th, ſhad in market.

April 16. Aſparagus in market.

June. Locuſts appearing in large numbers.

Abstract of Meteorological Observations for 1800.

Months in diviſions.		THERMOMETER. Higheſt.	Loweſt.	Mean of diviſion.	Mean of month.	BAROMETER. Higheſt. In.dec	Leaſt. In.dec.	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
July.	1	80	65	71.7	76.2	30.40	30.15	30.29	30.09	NE SW W	Clear 7.2 Cloudy 1.5 — Rain, &c. 5
	2	90	73	83.1		30.35	29.85	30.06			
	3	87	70	76.9		30.15	29.85	30.01			
	4	87	67	74.4		30.16	29.98	30.06			
	5	86	65	72.0		30.15	29.95	30.07			
	6	89	73	79.1		30.17	29.96	30.07			
August.	1	85	68	74.8	73.4	30.10	29.90	30.00	30.04	SW NW NE SE	Clear 4. Cloudy 3. — Rain, &c. 3
	2	84	66	72.4		30.20	29.90	30.04			
	3	80	64	73.8		30.05	29.90	29.98			
	4	79	60	71.7		30.30	30.00	30.04			
	5	81	67	74.5		30.34	30.10	30.18			
	6	82	66	73.3		30.15	29.65	30.03			
September.	1	75	59	67.9	66.6	30.25	29.69	29.92	30.07	NE NW SE	Clear 11. Cloudy 5. — Rain, &c. 9
	2	75	58	66.4		30.39	30.06	30.21			
	3	81	61	69.5		30.39	29.92	30.14			
	4	78	57	69.1		30.40	29.98	30.14			
	5	75	54	62.9		30.25	29.95	30.09			
	6	69	59	63.8		30.04	29 82	29.95			
October.	1	70	46	59.5	54.9	30.27	29.29	30.02	30.04	SW NE NW W SE	Clear 7. Cloudy 3. — Rain, &c. 15
	2	66	47	54.6		30.21	29.47	30.06			
	3	66	46	54.8		30.45	30.08	30.27			
	4	66	47	57.8		30.23	29.18	29.80			
	5	67	41	52.4		30.07	29.74	29.86			
	6	59	44	50.6		30.49	30.09	30.27			
November.	1	58	40	49.9	40.7	30.23	29.73	30.01	29.97	NW SW W	Clear 6. Cloudy 7. — Rain, &c. 9
	2	55	40	46.6		30.14	29.64	29.84			
	3	49	34	42.8		30.24	29.39	29.80			
	4	56	30	40 3		30.29	29.56	30.09			
	5	33	25	27.2		30.23	29.76	29.98			
	6	48	29	37.4		30.38	29.96	30.10			
December.	1	42	25	34.4	36.8	30.42	29.74	30.05	30.00	NW SW NE SE	Clear 9.2 Cloudy 6.2 — Rain, &c. 16
	2	36	25	31.6		30.44	29.74	30.04			
	3	50	28	33.0		30.29	29.23	29.82			
	4	51	25	38.7		30.15	29.78	30.03			
	5	51	37	42.2		30.18	29.79	30.01			
	6	62	26	41.0		30.28	29.86	30.10			

Range of thermometer during the year,	Degrees	80
Mean height of thermometer for the year,		53.40
Greateſt variation of thermometer in 24 hours,		20.
Range of barometer during the year,	Inches	1.74
Mean height of barometer for the year,		29.97
Rain, &c. fell this year,		39.
Greateſt quantity in one month (March,)		5 1 2
Leaſt (January,)		1

Abstract of Meteorological Observations for 1801.

Months in diviſions.	THERMOMETER. Higheſt.	Loweſt.	Mean of diviſion.	Mean of month.	BAROMETER. Higheſt. In.dec.	Leaſt. In.dec.	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
January. 1	34	7	23.4		30.56	29.89	30.22			
2	40	19	31.7		30.28	29.68	30.05			Clear 9.
3	46	27	35.7	31.2	29.96	29.46	29.77	29.92	NW	Cloudy 6.4
4	40	28	33.1		30.32	29 49	29.93		NE	—
5	35	18	26.3		30.19	29.65	29.85		SW	Rain, &c.
6	48	30	37.4		30.08	29.25	29.70			17
February. 1	40	27	33.6		30.25	29.53	29.90			
2	45	25	33.8		30.21	29.65	29.35			Clear 5.7
3	28	12	21.2		30.12	29.49	29.80		NW	Cloudy 2.
4	40	16	32.0	34.5	30.30	29.92	30.13	29.95	SW	—
5	56	19	35.6		30.51	30.12	30.29			Rain, &c.
6	63	40	51.2		30.48	30.14	30.25			14
March. 1	60	31	44.2		30.48	29.78	30.25			
2	58	32	39.8		30.01	29.25	29.78			Cloudy 6.3
3	54	38	44.8		29.91	29.28	29.65		NW	Clear 4.
4	56	40	50.0	44.4	30.09	29.38	29.05	29.65	NE	—
5	57	38	46.3		29.79	29.45	29.32		SW	Rain, &c.
6	53	35	41.3		30.30	29.39	29.90			21
April. 1	64	42	48.6		30.25	29.85	30.06			
2	53	37	43.3		30.28	29.60	29.95			Clear 8.6
3	58	39	49.5		30.18	29.85	30.02		NE	Cloudy 6.2
4	58	44	49.6	49.0	30.24	29.85	30.11	29.87	NW	—
5	54	34	43.2		30.06	29.18	29.73		SW	Rain, &c.
6	70	52	60.0		30.13	29.74	29.40			16
May. 1	72	55	61.8		30.07	29.58	29.77			
2	70	56	60.6		29.88	29.45	29.63		SW	Clear 7.5
3	75	58	64.0		30.09	29.88	30.00		NW	Cloudy 5.
4	78	55	64.2	64.6	30.09	29.80	29.93	29.88	NE	—
5	80	55	68.5		30.14	29.62	29.91		SE	Rain &c.
6	82	55	68.8		30.18	29.62	30,05			5
June. 1	79	58	67.9		30.15	29.59	29.94			
2	70	54	62.5		30.27	30.04	30.16			Clear 4.1
3	79	60	68.2		30.10	29.94	30.00		SW	Cloudy 2.
4	81	67	72.1	70.9	30.18	29.78	29.94	30.01	NW	—
5	86	65	75.6		30.18	29.85	29.99		NE	Rain, &c.
6	87	74	79.6		30.14	30.02	30.06			4

November 12. An earthquake at midnight.
21. First snow this season.

Abstract of Meteorological Observations for 1801.

Months in diviſions.		THERMOMETER. Higheſt.	Loweſt.	Mean of diviſion.	Mean of month.	BAROMETER. Higheſt. In.dec.	Leaſt. In.dec.	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
July.	1	90°	66	77·5		30.25	29.79	29.99			Clear 2.
	2	83	66	73·8		30.28	30.15	30.31			Cloudy 1.
	3	84	72	77·3	76.4	30.15	29.86	29.98		SW	—
	4	87	79	83·0		29.94	29.86	29.90	30.03	NW	Rain, &c.
	5	83	69	75·6		30.11	29.82	29.94		SE	8
	6	82	62	71·5		30.29	29.80	30.07			
Auguſt.	1	76	59	68.0		30.22	29.95	30.08			Clear 7.1
	2	79	65	72.3		30.18	29.92	30.08		NW	Cloudy 4.4
	3	81	67	73·2	72.8	29.99	29.85	29.95		SW	—
	4	83	70	76.0		30.18	29.84	29.98	29.99	SE	Rain, &c.
	5	85	69	76·1		29.90	29.64	29.81		NE	10
	6	75	65	71·4		30.20	29.97	30.09			
September.	1	85	73	77·0		30.15	30.01	30.06			Clear 5.
	2	86	72	79·0		30.19	29.88	30.05			Cloudy 3.4
	3	71	58	64.4	69.1	30.34	30.11	30.25		NW	—
	4	76	63	67.8		30.28	30.08	30.18	30.15	SW	Rain, &c.
	5	80	61	70.6		30.35	30.09	30.20		NE	6
	6	65	47	56·3		30.29	30.08	30.20			
October.	1	70	50	60.9		30.30	29.85	30.09			Clear 7.4
	2	67	43	54.6		30.52	29.96	30.25			Cloudy 1.4
	3	75	50	63·4		30.24	29.83	30.02		NW	—
	4	68	46	55.0	56.5	30.28	29.84	30.08	30.13	SW	Rain, &c.
	5	66	44	53·2		30.37	30.15	30.23			3
	6	63	42	52.0		30.25	30.05	30.13			
November.	1	61	33	47.0		30.53	29.99	30.23			Clear 7.
	2	52	31	41.1		30.40	29.99	30.27			Cloudy 5.7
	3	52	35	42·5		30.43	29.87	30.14		NW	—
	4	62	31	45·1	42.0	30.07	29.70	29.90	30.13	SW	Rain, &c.
	5	43	27	34·4		30.29	29.85	30.06		NE	13
	6	61	28	42.1		30.48	29.99	30.20			
December.	1	47	28	38.4		30.20	29.45	29.85			Clear 5.
	2	45	26	38.1		29.86	29.36	29.73			Cloudy 2.9
	3	43	31	36.2		30.25	29.92	30.08		NW	—
	4	36	21	29.5	35.7	30.19	29.79	29.92	29.89	SW	Rain, &c.
	5	45	26	36.5		30.26	29.19	29.80		NE	13.
	6	49	26	35·7		30.30	29.72	29.97			

Range of thermometer during the year,	Degrees	83
Mean height of thermometer for the year,		53.36
Greatest variation of thermometer in 24 hours,		19.
Range of barometer during the year,	Inches	1.38
Mean height of barometer for the year,		29.99
Rain, &c. fell this year,		40 6-8
Greatest quantity in one month (Auguſt,)		11 6-8
Leaſt (October,)		0 5-8

Abstract of Meteorological Observations for 1802.

Months in diviſions	THERMOMETER. Higheſt.	Loweſt.	Mean of diviſion.	Mean of month	BAROMETER. Higheſt. In.dec.	Leaſt. In.dec	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
1	57	30	43·3		30.35	29.80	30.16			
2	48	27	41·7		30.30	29.65	29.90			Clear 3.
3	50	28	35·5	40.8	30.33	29.83	30.09	30.07	SW	Cloudy 2.
4	52	34	41·9		30.10	29.70	29.96		NW	—
5	45	25	33·2		30.60	29.73	30.13			Rain, &c.
January. 6	56	24	49·3		30.45	29.90	30.18			12
1	42	22	32 8		30.45	29.70	30.08			
2	44	18	33·8		30.50	29.96	30.24			Cloudy 2.4
3	49	28	38.0		30.25	29.90	30.04		NE	Clear 2.2
4	50	24	37·3	34·5	30.40	29.95	30.26	30.04	NW	—
5	43	10	29·1		30.00	29.17	29.76		SW	Rain, &c.
February. 6	38	34	36.0		30.10	29.80	29.90			10
1	46	33	39·5		30.26	29.70	29.96			
2	52	24	38.6		30.20	29.45	29.91			Clear 3.5
3	47	27	38.2		30.50	29.90	30.12		SW	Cloudy 3.
4	66	35	54·1	42·3	30.40	29·75	30.11	30.01	NE	—
5	54	35	45·2		30.25	29.50	29.93			Rain, &c.
March. 6	49	28	38.7		30.35	29.75	30.05			9
1	70	38	55.2		30.23	29.75	30.10			
2	64	41	54.8		30.37	29.85	30.17			Clear 7.2
3	55	40	48.5		30.05	29.80	29.95		SW	Cloudy 4.
4	57	38	47·1	52 9	30·47	29.90	30 11	30.07	NW	—
5	65	49	55·9		30·35	29.80	30.13		NE	Rain, &c.
April. 6	67	48	56.3		30.20	29.80	30.00			7
1	69	47	59.0		30.30	29.90	30.11			
2	68	52	60.2		30.05	29.80	29.89			Cloudy 3.
3	67	52	57.4		29.80	29.50	29,62		NW	Clear 2.
4	62	50	54.4	59.1	29.90	29.50	29.64	29.82	NE	—
5	68	56	60.9		30.00	29.60	29.83		W	Rain, &c.
May. 6	71	58	62.9		30 00	29.70	29.85			11
1	72	58	64.8		30.10	29.83	30.00			
2	78	65	72.1		30.10	29.80	30.00			Clear 3.
3	86	67	76 3		30.10	29.90	30.03		SW	Cloudy 3.2
4	81	63	70.3	71.8	30.35	29.80	30.12	29.98	NE	—
5	83	68	76.0		30.00	29.06	29.81		SE	Rain, &c.
June. 6	80	62	71.7		30.05	29.86	29.96			10

February 17. A shad in market.
March 6. A herring in market.
April. 10. Asparagus in market.
October 26. Ice in the country.

Abstract of Meteorological Observations for 1802.

Months in diviſions.		BAROMETER. Higheſt.	Loweſt.	Mean of diviſion.	Mean of month.	THERMOMETER. Higheſt. In.dec.	Leaſt. In.dec.	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
July.	1	80	68	73·3	74·7	30.10	29.90	30.02	30.00	SW NW NE SE	Clear 5.4 Cloudy 5.2 — Rain, &c. 9
	2	76	63	71.0		30.00	29.80	29.91			
	3	78	66	71.0		30.20	30.00	30.12			
	4	84	69	76.8		30.20	29.96	30.06			
	5	88	74	79.8		30.15	29.93	30.03			
	6	82	73	76.4		30.10	29.82	29.91			
August.	1	82	67	73·3	74·5	30.00	29.90	29.96	30.05	NW SW NE SE	Cloudy 5.2 Clear 5. — Rain, &c. 12
	2	81	68	73.1		30.22	29.96	30.13			
	3	82	60	71.1		30.20	29.73	29.98			
	4	79	68	72.7		30.27	30.00	30.15			
	5	83	69	79·3		30.12	30.00	30.07			
	6	86	72	77·5		30.12	29.90	30.01			
September.	1	82	59	69.2	67.2	30.10	29.85	30.00	29.98	NW NE SW	Cloudy 4.4 Clear 5.2 — Rain, &c. 5
	2	73	55	64.0		30.07	29.77	29.88			
	3	84	62	73·5		30.00	29.80	29.95			
	4	83	65	72.7		30.18	29.98	30.07			
	5	80	48	65.2		30.15	29.80	29.88			
	6	66	53	59.0		30.23	30.10	30.13			
October.	1	67	50	58.3	59·9	30.37	30.20	30.32	30.10	NW SW NE SE	Clear 6.6 Cloudy 4. — Rain, &c. 6
	2	76	56	66.2		30.23	30.00	30.17			
	3	72	60	66.4		30.30	29.97	30.09			
	4	72	55	64.4		30.23	29.95	30.08			
	5	64	44	55.4		30.10	29.90	29 99			
	6	56	42	48.8		30.20	29.80	29.97			
November.	1	47	34	40.4	45.6	30.20	29.40	29.98	29.99	SW NE NW	Clear 5. Cloudy 3. — Rain, &c. 6
	2	56	43	49.0		30.30	29.97	30.10			
	3	54	38	46.7		30.10	29.80	29.93			
	4	52	43	48.0		30.05	29.70	29.88			
	5	57	41	49·3		30.15	29.87	30.03			
	6	54	32	40.7		30.17	29.90	30.03			
December.	1	48	32	41.3	33·3	30.33	29.30	29.96	30.02	SW NW NE	Cloudy 5.8 Clear 5. — Rain, &c. 12
	2	43	26	33·4		30.10	29.85	29.91			
	3	38	26	33·4		30.20	29.90	30.01			
	4	38	12	23.8		30.50	29.90	30.14			
	5	44	24	25.8		30.60	29.70	30.05			
	6	64	32	42.4		30.47	29.90	30.09			

Range of thermometer during the year,	Degrees	78.
Mean height of thermometer for the year,		54.96
Range of barometer during the year,	Inches	1.43
Mean height of barometer for the year,		30.03

Abstract of Meteorological Observations for 1803.

Months in diviſions.		THERMOMETER. Higheſt.	Loweſt.	Mean of diviſion.	Mean of month.	BAROMETER. Higheſt. In.dec.	Leaſt. In.dec.	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
January.	1	40	28	33.4	32.9	30.33	29.73	30.09	29.85	SW W NW	Clear 6. Cloudy 5. — Rain, &c. 12
	2	50	20	32.7		30.20	29.53	29.93			
	3	53	36	45.3		30.00	29.65	29.86			
	4	38	22	28.0		29.85	29.75	29.81			
	5	38	19	29.4		29.80	29.55	29.68			
	6	36	14	28.6		30.00	29.53	29.74			
February.	1	50	18	32.6	36.3	30.37	29.30	29.90	30.02	SW NW SE NE	Cloudy 3.1 Clear 2. — Rain, &c. 12
	2	51	28	39.6		30.40	29.85	30.01			
	3	55	24	37.2		30.48	29.80	30.21			
	4	44	25	33.9		30.35	29.95	30.03			
	5	51	30	39.3		30.25	29.90	30.04			
	6	43	24	35.6		30.20	29.80	29.98			
March.	1	45	14	30.0	41.9	30.05	29.50	29.90	30.03	SW NE NW	Clear 4.8 Cloudy 4. — Rain, &c. 7
	2	43	28	32.3		30.30	30.00	30.16			
	3	63	34	46.2		30.30	30.17	30.27			
	4	65	46	54.6		30.05	29.80	29.89			
	5	61	36	45.8		30.07	29.65	29.86			
	6	53	29	43.0		30.35	29.80	30.12			
April.	1	68	46	57.0	54.2	30.35	29.82	30.09	30.03	SW NE NW SE	Cloudy 5. Clear 4.8 — Rain, &c. 8
	2	61	44	51.8		30.20	29.85	30.06			
	3	66	50	58.1		30.03	29.83	29.93			
	4	60	32	45.7		30.40	29.80	30.10			
	5	69	47	57.4		30.27	29.83	30.00			
	6	67	44	55.7		30.30	29.77	30.05			
May.	1	67	46	56.1	58.9	30.15	29.77	29.85	30.03	NE NW SW	Cloudy 4. Clear 3. — Rain, &c. 8
	2	59	37	48.1		30.52	29.67	30.10			
	3	67	49	60.5		30.40	29.97	30.11			
	4	72	58	65.2		29.90	29.80	29.87			
	5	71	57	62.6		30.03	29.95	29.98			
	6	70	54	61.0		30.50	30.02	30.28			
June.	1	77	61	69.4	73.0	30.00	29.85	29.93	30.03	SW NW SE NE	Clear 7.6 Cloudy 3.8 — Rain, &c. 8
	2	74	58	65.6		30.33	30.00	30.17			
	3	86	67	75.9		30.10	29.95	30.02			
	4	82	63	72.5		30.00	29.80	29.89			
	5	85	66	76.7		30.30	30.05	30.18			
	6	85	72	77.9		30.12	29.95	30.04			

Range of thermometer during this year,	Degrees	84.
Mean height of thermometer for the year,		55.15
Range of Barometer during the year,	Inches	1.40
Mean height of barometer for the year,		30.03

Abstract of Meteorological Observations for 1803.

Months in divisions.		THERMOMETER. Highest.	Lowest.	Mean of division.	Mean of month.	BAROMETER. Highest. In.dec.	Least. In.dec.	Mean of div. In.dec.	Mean of mo. In.dec.	Prevailing winds.	Weather.
July.	1	85	64	72.9	78.0	30.15	29.85	30.01	30.03	SW	Clear 6.8
	2	88	68	77.2		30.25	30.15	30.19		W	Cloudy 5.
	3	90	74	82.8		30.20	29.95	30.02		NE	—
	4	84	73	79.1		30.10	29.87	29.95		NW	Rain, &c. 8
	5	88	72	79.1		30.10	29.80	29.94			
	6	86	70	77.3		30.15	30.00	30.09			
August.	1	86	75	80.0	75.7	30.03	29.90	29.96	30.07	SW	Clear 6.5
	2	83	71	75.6		29.97	29.80	29.87		NE	Cloudy 3.
	3	84	68	76.7		30.10	29.90	30.01		NW	—
	4	82	70	76.1		30.12	29.85	29.99		W	Rain, &c. 9
	5	80	63	70.0		30.28	29.90	30.15			
	6	84	66	76.2		30.25	29.90	30.05			
September.	1	79	66	71.8	65.9	30.10	29.90	29.99	30.06	NW	Clear 6.
	2	78	58	66.1		30.12	29.82	30.00		NE	Cloudy 2.8
	3	74	61	67.3		30.15	29.90	30.04		SE	—
	4	72	55	63.7		30.20	29.93	30.02			Rain, &c. 6
	5	71	58	65.4		30.32	29.90	30.17			
	6	68	54	61.5		30.40	30.00	30.14			
October.	1	67	52	59.3	57.9	30.40	29.63	30.01	30.02	NE	Clear 6.
	2	67	51	59.0		30.23	29.73	30.06		NW	Cloudy 4.6
	3	70	53	62.6		30.18	29.65	29.90		SW	—
	4	62	44	55.8		30.10	29.70	29.89			Rain, &c. 4
	5	59	44	51.6		30.38	30.10	30.20			
	6	65	48	59.3		30.20	29.85	30.06			
November.	1	60	45	53.6	43.2	30.13	29.90	30.06	29.98	NE	Clear 5.6
	2	59	37	45.4		29.98	29.50	29.78		N W	Cloudy 4.4
	3	50	30	40.9		30.25	29.90	30.11		SW	—
	4	49	30	40.1		30.22	29.65	29.88			Rain, &c. 7
	5	48	34	41.9		30.03	29.67	29.91			
	6	45	31	37.6		30.35	30.03	30.17			
December.	1	55	30	42.7	40.6	30.50	29 58	30.12	29.96	NE	Cloudy 5.6
	2	56	40	46.9		30.40	29.80	30.13		SW	Clear 4.6
	3	60	34	45.5		29.90	29.12	29.56		NW	—
	4	43	30	36.6		30.10	29.75	29.90			Rain, &c. 13
	5	44	22	33.0		30.40	29 80	30.07			
	6	43	34	39.0		30.20	29.82	30.01			

Greatest range of thermometer for six years,	Degrees	87.
Mean height of thermometer for six years,		54.16
Greatest range of barometer for six years,	Inches	1.74
Mean height of barometer for six years,		29.97

BY the lateſt intelligence from Great Britain, that of the moſt intereſting nature to the medical profeſſion is the ſudden alarm, excited by a recent publication of Mr. Goldſon, a ſurgeon of reſpectability at Portſea. This gentleman from ſome caſes which have occurred to him, has attempted to oppoſe the generally received opinion, of the prophylactic powers of vaccination. He admits the permanent efficacy of the *caſual* cow pox; but is diſpoſed to conſider the *inoculated* cow pox, as poſſeſſing only a temporary influence upon the human ſyſtem. This idea of the temporary advantages of vaccination, it is well known, was promulgated at a very early period after the introduction of this ineſtimable preſervative againſt variolous contagion. It was this, which aſſiſted the enemies of vaccination greatly in their oppoſition to it, and which, for a long time, prevented many from engaging in its practice, who have ſince warmly eſpouſed it.—It may well be imagined that a pamphlet containing the hiſtory of ſeveral caſes of ſmall pox after vaccination, and all occurring under the notice of one practitioner, would neceſſarily excite the greateſt uneaſineſs in the public mind, more eſpecially of that part of it, whoſe relations had been ſubjected to its influence, under the conviction of its permanent efficacy. The long and ſtrenuous exertions of the friends of vaccination, are thus unexpectedly thrown aback; and they muſt again ſubmit to ſtem the torrent of popular prejudice, which has been excited hereby. The numerous and unprejudiced teſtimony of thouſands, in its favour—founded on accurate and well conducted experiments, are thus oppoſed by the voice of an individual. It is not, perhaps, neceſſary to dwell upon the circumſtance of all theſe caſes (ſix in number) happening in the practice of a ſingle perſon, although it muſt be admitted as extraordinary, that amidſt the repeated trials of others, a ſimilar reſult has ſcarcely ever been noticed. It is, however, incumbent upon all, whoſe faith continues unſhaken in favour of the vaccine, to ſhew by additional facts, that the diſeaſe ſtill continues, and will ever continue to render itſelf dear, to the votaries of humanity, by upholding the ſame invaluable property which gave riſe to its introduction as a re-

medy in the practice of phyſic.—Without entering into the merits of the pamphlet alluded to, which will be beſt effected by thoſe on the ſpot—we ſhall endeavour to ſhow from a variety of ſources, that however accurate the account may be, it ought not to diminiſh our conviction of the utility of vaccination.—In ſo newly a diſcovered diſeaſe, doubtleſs, many points remain yet to be elucidated, and many anomalies to be attended to, of which we are at preſent ignorant; yet few diſeaſes have ever ſo rapidly advanced to the ſame perfection, as this has done.

The caſes which Mr. Goldſon has brought forward are ſaid to be intended to direct the attention of practitioners to an object of ſuch conſequence. For this he deſerves credit; for, as is ſaid in the Statement of Evidence from Trials by Inoculation, &c. by the Phyſicians of the original vaccine pock inſtitution, —"it is fitting that the public be informed of the real value of the new inoculation, that it may be adopted for as much as it is worth."

The above-named inſtitution, conſidering that facts are ſuperior to arguments in a point like the preſent, have inſtituted a ſeries of experiments, conducted with the greateſt candour and in the moſt ſatisfactory manner, by which the hopes of the friends of vaccination, are ten-fold ſtrengthened; whilſt its opponents, can ſcarcely but admit the concluſions drawn from them. Theſe we propoſe to inſert here at length, and have no doubt the importance of the ſubject will plead our excuſe for ſo long an extract.*

"THE preceding trials were intended primarily to afford additional evidence of the efficacy of the cow pock in deſtroying the ſuſceptibility of the ſmall pox, for the conſideration of thoſe who have informed the public of contrary reſults. If theſe experiments do not produce conviction, and enable the authors of the contravening ſtatements to perceive that the grounds of their error conſiſt either in their ſubjects not having in reality undergone the cow pock, or in their having had ſome eruptive complaint, miſtaken for the ſmall pox; we at leaſt, juſtly demand

* See page 64, & ſeq.

that our example be followed of re-inſtituting the trials on an equal number of perſons, who can be proved by authentic and fully adequate evidence to have gone through the vaccina.-Alſo, that in caſe of eruptions attending, ſuppoſed to be the ſmall pox, ſuch ſupervening eruptive diſorders be ſhewn from full and authentic evidence to have been the ſmall pox. Without the imputation of inaccuracy, inattention, or blameable ignorance in thoſe who declared that the cow pock does not produce incapability of taking the ſmall pox, at leaſt that it does ſo only for a limited time; we feel ourſelves juſtifiable in believing that they have deceived themſelves, and of courſe we cannot admit the caſes as evidence of the ſmall pox at any period whatever, ſubſequent to the cow pock.

"We now proceed to offer a few remarks on the two claſſes of adverſe evidence, for the ſake of which, the experiments related in this paper were inſtituted, *viz.* the caſes aſſerted of the ſmall pox excited by inoculation recently after the cow pock and of the ſmall pox ſo excited, more remotely, *viz.* three or four years after the cow pock.

"1. The experiments above related in this paper, ſhew, that above fifty perſons who had been vaccinated three to five years ago, and ten who had been vaccinated at a later period were incapable of taking the ſmall pox by inoculation in circumſtances choſen as moſt favourable for infection. For many of the ſubjects were expoſed to the effluvia from ſmall pox patients; they were all inoculated in three times the uſual number of places; they were all inoculated with efficacious and recent matter; and with many of them unuſual pains were beſtowed to introduce the matter quite fluid immediately from the variolous patient. In theſe it ſeems fair to calculate that not more than one, or at moſt, two, of theſe ſixty perſons would have eſcaped the ſmall pox, if they had not already gone through that diſeaſe or its vicarious affection, the cow pock.

"2. Theſe experiments ſtrikingly manifeſt that the ſame perſon is equally incapable of taking the cow pock a ſecond time, as of the ſmall pox, as hath been proved five years ago, and been

ſubſequently confirmed; and it has been elſewhere ſhewn by many trials that a perſon cannot take the cow pock ſubſequently to the ſmall pox.* Independently of the facts thus determined by experience, they have been demonſtrated to be truths in another place five years ago, by reaſoning according to a mathematical formula. Now, although theſe two latter truths alone do not demonſtrate, with mathematical cogency, the truth that a perſon cannot take the ſmall pox after the cow pock; yet the proof of this laſt truth, already ſo firmly eſtabliſhed by direct experiments, hereby becomes more full and indeed, perhaps, ſuperabundant.

"3. The appearances obſerved on the inoculated parts, in the above experiments, which ſome may think unneceſſarily minute, we apprehend will be found ſerviceable, by informing the public of the variety of different forms of the local affection produced in ſimilar caſes. It has been obſerved in ſome of our above experiments, that the local affection from the ſmall pox matter reſembled many caſes of the pock of the vaccina; and although an eye much accuſtomed to view variolous eruptions, can never fail to ſee the differences between ſuch eruptions and the local affections, in the preſent inſtances; yet we know from intercourſe with practitioners, that thoſe who have not acquired ſuch an habit of obſervation, are prone to be alarmed, in imagining that the eruption excited on a ſecond inoculation is the ſmall pox.

"4. The appearances of the inoculated parts in thoſe who have had the cow pock are not only oftentimes different in different perſons, but they are even different in the ſeveral punctures of the ſame arm; and, as far as we could judge, no appearances were remarked from the variolous inſertions which did not alſo occaſionally occur from the vaccine ones; except that the effects were generally leſs evident from the latter than the former. Theſe varying appearances according to our

* Many caſes diſprove this opinion; I was myſelf the firſt perſon in Philadelphia who had the diſeaſe, in the higheſt perfection; I could enumerate, a dozen perſons more, who have taken it after ſmall pox, in confirmation, beſides the numbers noticed in Europe.—*Editor.*

obſervations are, ſuch as, (if they occurred on inoculation of matter in order to produce the cow pock, but failed to do ſo,) would be called the *Spurious Cow Pock.* But hence, we think, is manifeſt the impropriety of ſpeech, and the conſequent diffuſion of erroneous notions, in the uſe of the terms, Spurious Matter, and Spurious Cow Pock, in thoſe who have, as well as thoſe who have not had the vaccina or variola; terms which imply a diſtinct and ſpecific diſorder or affection, and a diſtinct and ſpecific matter: whereas the fact from our experience on the preſent and former occaſions, is, that the local affections are indefinable at preſent, and the terms to denote them muſt, of courſe, be indefinite and vague.*

"5. The different appearances of the inoculated part ſeemed to depend upon ſeveral circumſtances, *viz.* the recent, the diluted and altered ſtate of the matter by keeping.—The kind of wound in the inoculation—the external injury or irritation, by preſſure of clothes, ſcratching, &c.—the habit of the ſubject; but whether according as the matter was variolous or vaccine, will require more experience to determine; yet in the preceding experiments, the effects ſeem only to differ in being in a greater degree from the variolous than the vaccine matter, and certainly not according to the length of time after vaccination.†

"6. To ſee whether or no the local affection in theſe experiments aroſe from any ſtimulus but the ſerum of the blood accompanying the infectious matter, ſerum was inoculated in ſeveral inſtances. From theſe it appears that this fluid ſtimulated the ſame arm much leſs than vaccine or variolous matters.‡ As

* The term *ſpurious diſeaſe* is proper, but not *ſpurious matter:* the former diſcriminates the departure from the *true* appearance of the diſeaſe, which may be produced even with infection from the moſt perfect pock.—*Editor.*

† It appears from the preceding, and numerous trials by others, that the ſtate of inexcitability of the conſtitution is the ſame with regard to the variolous and vaccine matter; and is not leſs ſome years, than ſome months, weeks, or days after the cow pock. Hence we have no ſigns of the unſuſceptibility growing leſs and leſs in the courſe of five years after vaccination. Nor is the excitability of the ſkin altered by repeating the inoculation, which ſhews that the local affection is not from any ſpecific ſtate.

‡ The very feeling of the parts inoculated, deſcribed by its being a tingling

far as a trial of ſix punctures with a clean lancet in a few vaccinated patients may be reaſoned upon, the local affection is neither excited ſo frequently, nor to ſo great a degree, as with animal matters, in general; but when it does occur, it is ſimilar to ſome caſes of inoculation with vaccine and variolous matter.

"The above experiments ſhew how harmleſs, though not always without pain, the inoculations by half a dozen punctures on each arm, with vaccine and variolous matters, are in thoſe who have gone through the cow pock; and hence that the teſt of the ſecurity deſired having been produced may be very ſafely applied.

"Before we cloſe this paper, we muſt deliver ſome remarks on the two other claſſes of adverſe caſes above noticed, *viz.* 1. Thoſe of the ſmall pox ſupervening, in what is called the natural way, a ſhort time after the conſtitution has been affected by the cow pock: 2. Thoſe of the ſmall pox ſo occurring in three or more years after the cow pock. Here it will be right to bring forward our evidence of defence.

"1ſt. A great number of inſtances had fallen under obſervation of perſons being rendered incapable of the ſmall pox in the natural way throughout life, who had accidentally contracted the cow pock in the occupation of milkers, long before vaccine inoculation was propoſed for trial in 1798. This fact was known, not in Glouceſterſhire only, but in many other counties of England, in Ireland, and different parts of the continent of Europe.

"2d. The inſtances of ineffectual inoculation for the ſmall pox, ſoon after the inoculated cow pock, ſince the adoption of vaccination firſt of all in 1799 and 1800, as publiſhed by Dr. Woodville; by one of the writers of this ſtatement; and at this inſtitution, from the year 1800, as well as the ſubſequent teſtimonies of numerous reſpectable practitioners, ſeemed to

ſmarting ſenſation immediately after inoculation with vaccine or variolous matter, which is not felt after inoculation with either ſerum of blood, ſerum of veſicles in eryſipelatous inflammation, or puncture with a clean lancet, ſhows that the ſtimulation is of a different kind by vaccine or variolous matter from the others here mentioned.

render all further trials as counter-proofs, a waſte of time and labour, merely with a view to the queſtion of ſuſceptibility exiſting for a certain time, at leaſt after the vaccina; and from that confidence, as already ſaid, we have for ſome time not urged the uſe of inoculation with variolous matter; yet the number of inſtances of caſes aſſerted to have been the ſmall pox, in our ſphere of practice, has not increaſed ſince the variolous inoculation has been diſcontinued.

"3d. The numerous connections and correſpondents of this inſtitution, during the courſe of four years and a half from its eſtabliſhment, have not furniſhed more than half a dozen inſtances aſſerted to have been the ſmall pox, after the cow pock at this inſtitution. Of ſeveral of theſe there was no opportunity of inveſtigating the circumſtances; but in others we found, either that the ſupervening eruptions were not thoſe of the ſmall pox, or if, as in one inſtance, they really were ſmall pox, there was much reaſon to believe only a local affection had been produced from the vaccine inoculation; and in others the ſmall pox ſupervened within a fortnight after the inoculation,* therefore, from variolous matter in the conſtitution before the operation. Beſides innumerable inſtances of expoſure to the ſmall pox with impunity, which we heard of weekly during ſeveral years, the inquiry for caſes to furniſh the preſent ſtatement affords alone a concluſive body of evidence. To obtain the ſixty caſes of inoculation here publiſhed, application was made to at leaſt two hundred and fifty families†, four-fifths of whom would not allow the re-inoculation to be inſtituted: and the reaſon aſſigned by moſt of them was, that they were ſure

* How it happens that the ſmall pox can break out in a week or two from the firſt day of vaccine inoculation, has been explained in the Report of this inſtitution above cited.

† The ſearch for the ſubjects of theſe experiments afforded the opportunity of aſcertaining the ſtate of health ſubſequent to vaccination, and we had the ſatisfaction to find that moſt of them had enjoyed as good, or a better, ſtate of conſtitution, than before vaccination; and that the few in a contrary ſtate, among children, had no reaſon to impute it to the cow pock; yet where eruptions, or ſkin complaints had come on, parents generally aſcribed them to the cow pock.

the ſmall pox could not affect them, having been ſo often and ſo favourably expoſed, namely, by ſleeping, handling, playing, nurſing, and in other ways coming in contact with ſmall pox patients.

"We were eſpecially anxious to learn whether or not the ſmall pox had ſupervened in thoſe parts of the country where vaccine inoculation had been practiſed in the year 1799, for two reaſons.

"1ſt. Becauſe of the length of time ſince vaccination.

"2d. Becauſe the characters of the vaccine pocks were not then known, either to the inoculators in the firſt trials, or to any other perſons; not even, to judge from his work, the promulgator. It appears, eſpecially by letters from practitioners who were witneſſes in 1799, to the vaccine inoculation of ſeveral hundred ſubjects, under the care of two members of our medical eſtabliſhment, *viz.* Dr. Pearſon and Mr. Keate, that not one has ſince taken the ſmall pox. Extracts from letters to this purpoſe are ſubjoined.

"Thoſe who have written rather profeſſedly againſt the vaccine inoculation, have produced from their practice, (which in all probability bears but a very ſmall proportion indeed to that of this inſtitution, and of its members) a much greater proportion of adverſe caſes than the whole number of even the doubtful ones of the united experience of our body of members.

"On examination of the hiſtory of contravening caſes, even as publiſhed, we do not find the neceſſary proofs in many of them, of the eruptive ſupervening diſorders being the ſmall pox: and in others there are wanting the proofs of the cow pock conſtitutional affection preceding. If it be not thought improper, we would take as an illuſtration the caſes juſt publiſhed by Mr. Goldſon, whom we ſelect for his candour.—The 1ſt, 2d, 4th, 5th, 6th, and 7th, in our judgment, want further evidence to prove them to have been caſes of ſmall pox. With reſpect to the third caſe, there ſeems no reaſonable doubt that it was *according to the ſtatement, a caſe of ſmall pox after the cow pock.*

"The ſame kind of teſtimonies, in as great proportion, are from time to time publiſhed of perſons taking the ſmall pox after inoculation for the ſame diſorder; and as ſome practitioners have inoculated ſeveral ſcores of patients, on the ſame occaſion, and in the ſame neighbourhood or town, for the cow pock, many of whom have afterwards taken the ſmall pox, ſo even lately ſome practitioners have inoculated a ſet of ſubjects for the ſmall pox, moſt of whom afterwards took the ſmall pox by effluvia, or by inoculation. The evidence is therefore even at this day not without exceptions to the efficacy of variolous inoculation.

"However generally practitioners of experience and obſervation may agree on what is, and what is not ſmall pox, yet now and then caſes occur in which there is a difference of opinion; and in employing the teſt of inoculation with the matter ſometimes, ſuch caſes were proved to have been, and at other times were proved not to have been the ſmall pox. The ſame is true with regard to the cow pock.

"Hence then it ſeems to us that at the utmoſt, the adverſaries can only pretend to maintain two things.

"1. That in a very ſmall proportion of inſtances, perhaps one caſe out of ſeveral thouſands, the cow pock fails to deſtroy the capability of the ſmall pox in a ſhort time after vaccination.

"2. That in a greater proportion of inſtances the ſuſceptibility of taking the ſmall pox, will be found to have returned in a longer time, as three or more years after vaccination.

"But we ſubmit to the judgment of the whole medical world, whether or not, conſidering the body of poſitive evidence brought forward,—the improbability of a greater number of failures of the cow pock in the practice of certain ſingle perſons, (whoſe whole experience bears ſo ſmall a proportion to that of this inſtitution, and its connections,) than in the practice of thoſe of an hundred times its extent; and the numerous caſes aſſerted to be thoſe of ſmall pox, which, on inveſtigation, were found to be other eruptions; we ſay, conſidering all theſe points, is it not more probable that the adverſe inſtances are

deceptions* than that they afford exceptions to a law of the human animal economy?"

Theſe conſiderations, properly attended to, it is hoped will have that due weight in every candid mind to which they are ſo juſtly entitled; and if they have that effect, which the editor conceives they muſt, they will inevitably deſtroy any kind of doubt which a peruſal of Mr. Goldſon's pamphlet might produce.

Much more might be ſaid reſpecting the experiments made on this ſubject by other gentlemen in Europe, as well as by the phyſicians of this city, and by others on the continent of America;—but as it is preſumed thoſe above mentioned are amply ſufficient, ſo it is unneceſſary to occupy our readers with any more; for, if after peruſing the above, any ſhould be ſo ſceptical as to doubt, we may ſay with ſcripture, "neither would they believe though one ſhould riſe from the dead."

As it may have ſome weight in the ſcale of truth to ſhew, that we have not heſitated to make the experiments on our own children, which we have inſtituted upon others, and as we have perhaps tried it more frequently in one caſe, than we know to have been done before, it is preſumed the following ſtatement will not be unacceptable.

On the 29th of December, 1801, a few weeks after the introduction of the vaccine into Philadelphia, I vaccinated my ſon Edward Jenner Coxe, aged three weeks, with infection of the ninth day, then fourteen days old†. The diſeaſe ſucceeded to

* We do not pretend that we are able to prove in what reſpects the caſes were deceptions; on the contrary, in place of rejecting, we muſt admit them according to the ſtatements; and future obſervations can alone explain ſuch anomalies.

† The infection employed was taken from a perſon, who had it excited in her, by virus from the arm of a gentleman to whom I had communicated it from *myſelf*. It was conſequently the third remove from me. Dr. Pearſon having denied the poſſibility of exciting the vaccine after the ſmall pox, I have only to ſtate the above to prove the fact.—*Editor*.

my utmoſt wiſhes, no indiſpoſition was perceptible throughout. I teſted him with ſmall pock matter on the 20th of January, 1802, and again on the 29th of the ſame month; on the 18th of February, I repeated it; but all failed. I therefore omitted any further attempt till the 23d of February of the following year, 1803. This failing, I repeated it on the 29th of April, with a ſimilar reſult. In the preſent year, 1804, I renewed my attempts, on the 31ſt. of January, the 29th. of May, and lately on the 20th. of October. Theſe have all uniformly failed, though generally made with freſh infection, taken from perſons labouring under the confluent ſmall pox.—In two or three of the attempts, a ſmall puſtule appeared, rapidly declining, except once, when from rubbing, it produced a ſlight ragged ſcab—which would probably have been the caſe with any common ſore, from a ſimilar accident. I have, beſides the above attempts to excite the diſeaſe by the inſertion of matter, given him the chance of taking it, by above a *dozen* expoſures to the natural ſmall pox. He has been held in the arms of perſons labouring under it, and has been for a week together, expoſed a conſiderable time daily to patients, brought to me, covered with puſtules. This I conceive to be concluſive evidence, not to be overthrown, by caſes, problematical at leaſt,—or depending on circumſtances not at preſent perhaps ſufficiently underſtood in the hiſtory of the diſeaſe.*

EDITOR.

* It is a very aſtoniſhing circumſtance, that ſo much clamour ſhould be raiſed againſt vaccination, and ſuch doubts excited againſt its efficacy, from the rumours of a few unſucceſsful caſes, which, if properly inveſtigated, before circumſtances eſſential to their hiſtory are forgotten, would be found to originate in error;—whilſt it is not adverted to, that if the vaccine was not an abſolute preventive of the ſmall pox; inſtead of a few (at beſt) doubtful caſes of ſupervening ſmall pox, hundreds, nay, thouſands of caſes, not admitting of the ſmalleſt doubt, would, ere this, have come before the public. This is perhaps as ſtrong a ground to reſt upon, as could be taken. Amidſt all this uneaſineſs alſo, we ſee the ſmall pox continually exerting its baleful influence on hundreds of our unfortunate fellow-mortals, who are expoſed to it. In New-York, where regular weekly returns of deaths are made, by an inſpector appointed for the purpoſe, we find, that ſince the beginning of November to the 8th of Decem-

Extract of an original Letter from Thomas Hackett to J. & H. Phillips, dated Duck-creek, April 10, 1720.

"Since you went hence I wrote you four times, though I have yet heard nothing of you, and impatiently expect a letter from you. I hope you got well home, and it has been of late a great ſatisfaction to me that you went when you did, for this winter and ſpring we have been viſited in theſe parts with ſuch a mortality as exceeds the laſt great plague in London, quantity for quantity of people conſidered, (as thoſe that remember that ſay,) in ſhort, it has in a manner laid this place deſolate. I cannot recount to you the names and number of the dead; but to give you ſome notion of the terrible havock, I will name a few particulars. Joſeph England loſt his wife and thirteen or fourteen children and ſervants; out of Worral's family, ſix people; John Smith, wife, and boy; two children of Empſon's dead, and his wife hardly recovered it; Matthew Corbit and his wife; William Cummins and wife; Isaac Corbit, John Cook, Abſalom Cuff and ſon, all dead; and laſt week your couſin Sall Mifflin; but theſe are but a few, for you to gueſs at the terror of the viſitation by. I thank God, brother's family has eſcaped yet; and at the manor, Robert Veſſy only is dead, though Weſt and Abigail were both ſick at the ſame time alſo. I have been hitherto well in health, but it ſtrangely ſurpriſed me; and I fear and expect my fate will be to lay my bones here, though hope, the laſt thing that leaves man in this world, ſtill relieves me with the thoughts of ſeeing you next year, as by God's help I intend to do."

ber, upwards of 70 perſons have fallen victims to its fury. (If the ſame mortality exiſts throughout the year, not leſs than 500 perſons muſt be annually carried off by it.) If the ſame regular returns were made in Philadelphia, there is reaſon to believe at leaſt 100 perſons would be found to have ſunk under this direful ſcourge during the ſame period. Let thoſe who advocate the ſmall pox—in oppoſition to vaccination—think ſeriouſly of this!—*Editor.*

As the preſervation of even imperfect details of the diſeaſes of our country, is of importance, I have extracted the above from the original letter in my poſſeſſion. Although it gives us no idea of the nature of the diſeaſe adverted to, perhaps there may yet remain ſome documents on the ſubject, which may be brought to light by it, and which would be highly acceptable to the editor.—It may not be improper to remark, that this was the year, in which the plague raged with ſuch unprecedented violence in Marſeilles.

EDITOR.

Extract of an original Letter from William Monington to Andrew Ruſſel, dated Philadelphia, 26th 7th mo. 1700.

"OUR arrival here was in the beginning of corn harveſt; the weather grew very hot and fainty, and ſome of our paſſengers that went preſently to harveſt work, ſpent themſelves in the heat, and expired in the fields.

"The heat continued and a ſickly time came on; the diſtemper was generally accounted peſtilentious; it ſeized with a violent pain in the head and back, and cauſed vomiting blood. Few over-lived ſeven days after they were taken ill, and very few recovered. From the beginning of the 6th month till the latter end of the 8th month, there died of friends and others, (beſides thoſe that were buried in the church-yard) to the number of 170 men, women and children; but afterwards the violence of the diſtemper abated, and very few died.

"The ſame diſtemper, it is ſaid, was very mortal in Barbadoes, and alſo upon the ſeas. In the time of the ſickneſs here, arrived the Britannia from Liverpool, that brought two hundred paſſengers and thirty ſeamen from England; of whom about fifty-eight died on the ſeas, (as they ſaid of the ſame diſtemper*); Thomas Muſgrave was one, and ſeveral others of them died here."

* This diſeaſe on board the Britannia, was, more probably, the jail or hoſpital fever, produced from the crowded and unventilated ſtate of the ſhip.—*Editor.*

THE bilious remitting and intermitting fever has prevailed during the laſt ſummer and autumn, very generally in the high grounds in Pennſylvania. Dr. M'Cleland gives the following account of it as it appeared in Franklin county, in a letter to Dr. Ruſh, dated November 17, 1804.

It appeared, the doctor writes, in all the forms of a malignant, common bilious, and intermitting fever. It was ſo general, that ſcarcely a family, and in ſome families ſcarcely an individual eſcaped it. The remedies for it were bleeding, purging, ſweating, a ſalivation, and the bark, according to the force, type, and ſtages of the diſeaſe. Few died where medical aid was called ſoon, and the above remedies uſed. It was moſt fatal to the Germans who either neglected to ſend for phyſicians, or relied upon quacks. Relapſes were very common. They occurred in no caſe where a ſalivation became neceſſary to cure the fever. The extent of the diſeaſe may readily be conceived, when it is added, that the doctor adminiſtered to his patients ONE HUNDRED AND THIRTY POUNDS of bark in the courſe of the ſeaſon, and would have adminiſtered more, could he have procured it. He aſcribes this epidemic to the warm weather which ſucceeded the frequent rains in his neighbourhood during the ſummer, and to the exhalations which were the reſults of them.

The "*Shamaul*" the hot wind of the deſert, is ſtated by the author of a late voyage to Malta, from the information of a Moor (his friend) to have carried off in the deſart, of a caravan of 70,000 pilgrims, one-ſeventh of the whole, or 10,000 perſons, and of his own particular party of 13, nine died.

From the Georgia Republican.

Meſſrs. LYON & MORSE,

The following caſe proves that an exceſs of alkali, ſometimes exiſts in the human ſtomach.

Being ſeized one morning with the ſickneſs of ſtomach termed *pyroſis ſputatoria*, called *water-braſh* in Scotland and Ireland,

I found mouthfuls of a diſagreeable water-like fluid riſing from my ſtomach, accompanied with diſtreſſing ſenſations, and ſlight inclination to vomit.

I remarked that the fluid did not taſte acid. Some chemical teſts were at hand: I dipped the end of a ſlip of litmus paper into ſome of the fluid, which fell on a board, and perceived no change in the colour of the paper.

I then dipped in the end of a ſlip of paper reddened by cæſalpinia, and found that it became ſimilar in colour to the other end of the ſame ſlip which had been dipped into alkali.

Concluding that an exceſs of alkali was preſent in my ſtomach, I took a little vinegar and water, and was preſently relieved. I took a little more, and was quite well in one or two minutes.

I am, Sir, with reſpect,

JOHN BRICKELL.

Savannah, Auguſt 8, 1804.

Dr. Victor Michelotti, has given in the Journal de Phyſique, Brumaire, year 12---a highly intereſting paper, entitled, "Reſearches reſpecting the action exerciſed by Caloric, on the vitality of animals." This experimental eſſay points out very clearly that animals are more injured by being ſlowly, rather than rapidly deprived of caloric. His experiments on caterpillars and ſpiders appear to prove this. The Doctor thought it "of importance to aſcertain what would take place during a continued privation of the caloric neceſſary for the ſtate of life," which, he ſays, "might ſerve to explain whether the real death of animals rendered torpid by cold, ariſes from the want of that caloric neceſſary to the ſtate of life, or rather from the manner in which they are deprived of it." Several intereſting experiments are detailed, made with a view "to aſcertain what would take place, by rendering torpid and reviving alternately the animals, or by making them to paſs ſlowly from heat to cold, and from cold to heat, or rapidly from heat to

cold." By thoſe experiments (made on ants) he ſays, "it is ſeen that if 9.9 in 100 died of thoſe who were preſerved in a ſtate of torpor, on account of the cold continued for eight days, 88.2 in 100 die, of thoſe who are ſubjected to an alternate and ſlow privation of caloric, and that 25.5 in 100 die of thoſe who have been ſuddenly and alternately deprived of the caloric neceſſary to the ſtate of life."

"But it is ſtill more remarkable," he elſewhere adds, "that if vital beings do not return to life but when they have been ſpeedily deprived of the neceſſary caloric, this law ſhould be general, as animals expoſed to exceſſive heat, do not return to life but when their temperature is rapidly changed. As this may be eaſily conceived, I ſhall mention only one example.

"Of four lively frogs, which appeared to be of the ſame age, expoſed in water to a heat equal to thirty-five degrees, [probably of Reaumur's ſcale, = 110.3 Fahr.] a degree fatal to theſe animals, only two, which were immerſed ſuddenly at that temperature in water at ſixteen degrees were recalled to life. It is always, therefore, a ſudden privation of caloric which leaves organic beings in a ſtate ſuſceptible of life."

The doctor ſuppoſes, in explanation of the phenomena he relates, "that the ſlow privation of caloric produces a greater debility, than rapid privation," and that animals are preſerved in life by loſing in a ſpeedier manner their caloric, "becauſe the organic parts, by the help of a ſlow change, aſſume diſpoſitions which they could not acquire by a ſudden privation."

By ſome experiments of Fourcroy and Vauquelin, read before the National Inſtitute, it appears that the bones of animals differ in compoſition from thoſe of men. This difference conſiſts in the preſence of the phoſphate of magneſia in the bones of all the animals they had examined, except in thoſe of man. The method of ſeparating the magneſia from the bones of animals is pointed out, and its proportions in different animals.

Theſe philoſophers explain it, from a fact eſtabliſhed by them on a former occaſion, viz. " that the urine of men contains phoſphate of magneſia, and that the urine of animals is free from it. This ſalt therefore is ejected in man, by the kidnies; it therefore does not enter into the compoſition of his bones;"

Nicholſon's Journal.

" A new earth has been diſcovered by Profeſſor Klaproth of Berlin, in an ore which was hitherto ſuppoſed to contain tungſten, to which he has given the name of *ochroit* earth. " This earth ſeems to form the connecting link between the earths and metallic oxides," &c. *Ibid.*

Suberic acid, mixt with oxalic acid is obtained by the action of nitric acid upon paper, according to Brugnatelli. *Ibid.*

Important and curious diſtinguiſhing property between the galvanic and electric fluids, by Mr. Cuthbertſon, in a letter to Dr. Pearſon, dated 27th March, 1804.

" 1. Charcoal was deflagrated and ignited for above an inch in length.

" 2. Iron wire, one-fortieth of an inch diameter, was melted into a ball one-ſixteenth of an inch diameter.

" 3. Platina wire, one-hundredth of an inch diameter, was melted into a ball one-tenth of an inch diameter.

" 4. Braſs wire, one-twentieth of an inch diameter, three-fourths of an inch in length, was ignited.

" 5. Braſs wire, one-ſixteenth of an inch diameter, was red hot at the end.

" 6. Iron wire, one-hundred-and-fiftieth of an inch diameter, was red hot for ſixteen inches in length.

" 7. Iron wire, twelve inches deflagrated, and melted into a ball.

" 8. Iron wire, ſix inches in length, was deflagrated.

" 9. Iron wire, eight inches in length, was ignited.

" Two troughs, each trough containing thirty pairs of plates ſix inches ſquare, were uſed for the firſt ſeven experiments, and one of thoſe troughs only for the two laſt experiments.

" The four laſt experiments, prove, I think, that *double quantities of Galvanic fluid only burn double lengths of wire, and not the ſquare, as electrical diſcharges do.*" *Tilloch.*

Two new metals are ſaid to have been diſcovered in Crude Platina. A paper on this ſubject by Smithſon Tenant, Eſq. F. R. S. was read at the Royal Society with an account of their properties. He has given the name of *iridium* to one, from the various colours of it in ſolution; and that of *osmium* to the other. *Nicholſon's Journal.*

Joſeph Hume, Eſq. in a letter to Mr. Tilloch, ſuppoſes the iridium to be only *tungsten.*

To the Editor of the Philadelphia Medical Muſeum.

DEAR SIR,

ACCORDING to my promiſe, I ſend you a receipt for making an indelible ink, ſuperior to that imported from London, conſiderable quantities of which, have lately been ſold in Philadelphia.

I am, Sir, with reſpect,
Your humble ſervant,
JAMES WOODHOUSE.

Diſſolve four drachms of the nitrate of ſilver or lunar cauſtic of the ſhops, in four ounce meaſures of rain or river water, and when the ſolution is clear, add to it ſixty drops of an infuſion of galls, made by pouring a gill of boiling water, on two drachms of powdered galls.

Diſſolve one ounce of pearl-aſh, in four ounce meaſures of water, and let it ſtand until the ſolution becomes clear.

Dip a flat ſtick in the ſolution of pearl-aſh, and impregnate the article in the part to be marked with it, and let it be well dried. Then write over it, with a clean pen, having a ſtiff nib, dipped in the ſolution of lunar cauſtic, holding the gallate of ſilver ſuſpended, and the letters will be formed of a black colour.

When an infuſion of galls is added to a ſolution of the nitrate of ſilver, the gallic acid unites to a portion of the oxide of ſilver of the nitric ſolution, and forms gallate of ſilver, which remains for a ſhort time ſuſpended in the ſolution, and makes the ink, which conſiſts of gallate and nitrate of ſilver, flow from the pen in an equable manner.

When the ink comes in contact with muſlin, linen or cotton, impregnated with the ſolution of pearl-aſh, a double elective attraction takes place. The gallic and nitric acids, unite with the pearl-aſh and form gallate and nitrate of pearl-aſh; the carbonic acid of the pearl-aſh joins the oxide of ſilver, and makes carbonate of ſilver, which is depoſited upon the part written.

When articles, marked with this indelible ink, are waſhed, the gallate and nitrate of pot-aſh, being ſoluble in water, are carried away, and the carbonate of ſilver remains behind.

When the gallate of ſilver has fallen to the bottom of the nitric ſolution, the veſſel containing it, muſt be frequently ſhaken, to keep it ſuſpended.

The quantity of ink, mentioned in this receipt, will fill forty bottles, of the ſize imported into this country.

The pot-aſh contained in the vials brought from London, is coloured with cochineal or red ſaunders.

It is with pleaſure we notice the formation of a new ſociety by the medical characters of Savannah---under the title of the "Georgia Medical Society." It was organized in June---when the following officers were elected: Dr. N. W. Jones, preſident; Dr. J. Irvine, vice-preſident; Dr. L. Kollock, treaſurer; Dr. J. Grimes, ſecretary.

AMERICAN PHILOSOPHICAL SOCIETY.

THE thanks of the American Philoſophical Society are preſented to the following perſons, for the *Communications* and *Donations* affixed to their reſpective names.

JOHN VAUGHAN, Librarian.

Philadelphia, October 19th, 1804.

COMMUNICATIONS.

A Memoir on the Improvement of Agriculture and the uſeful Arts. By A. Fothergill, M. D.

An Eſſay on the Preceſſion of the Equinox, ſigned Julius, and intended for the Magellanic premium.

An Account of his Temporary rudder. By Capt. William Mugford of Salem, Maſſachuſetts.

An Appendix to his Memoir on the Miſſiſſippi, publiſhed in vol. 6, p. 165, of the Tranſactions. By William Dunbar, of Natchez.

DONATIONS.

An Indian Hatchet. By Major Rivardi.

Specimen of Sulphate of Magneſia found in Virginia, in the cave in which the bones of the megalonyx were diſcovered. By William Hembell.

Various ſpecimens of Gypſum from France and from Nova Scotia. By John Vaughan.

For the Library.

Modern Geography digeſted on a new plan. By John Pinkerton. Article of America corrected and enlarged by Dr. Barton, 2 vols. 8vo. and an Atlas of 68 maps. Philadelphia, 1804. Preſented by John Conrad and Co. publiſhers.

The Life of Waſhington. By John Marſhall. 1ſt and 2d vols. 8vo. Philadelphia, 1804. Given by C. P. Wayne, publiſher.

The Wars ariſing out of the French Revolution. By A. Stevens. 2 vols. 8vo. Philadelphia edition, 1804. By Bioren and Plowman, publiſhers.

Juntas Publicas de la Sociedad de los Amigos del Pays de Valencia, from 1799 to 1801. 3 vols. 4to. By the Society.

The Ninth Volume of the Tranſactions of the Hiſtorical Society of Maſſachuſetts. By the Society.

Vocabulary in eight Languages. By Major Rivardi.

Travels in Turkey, Egypt, &c. By William Wittman, M. D. 8vo. Philadelphia, 1804. By James Humphreys, publiſher.

Miſcellaneous works of David Humphreys. 8vo. New-York, 1804. By the Author.

Valedictory addreſs, delivered before the Cincinnati of Connecticut. By David Humphreys. 8vo. Boſton. By the Author.

Papers on Agriculture, publiſhed by the Maſſachuſetts Agricultural Society. 8vo. Boſton, 1804. By John Vaughan.

Brathwaite on the utility of the oxygenated muriatic acid in the Scarlet Fever. 8vo. London, 1804. By Joſhua Gilpin.

Mathematical Correſpondent, No. 1 and 2. 12mo. New-York, 1804. By the Proprietors.

Explanation of Hoppe's improved Sextant and Azimuth Compaſs. London, 1804. From the Author, by R. Patterſon.

Rev. Dr. Valpy's Reply to the Britiſh Critic. London, 1804. By A. Fothergill, M. D.

Abregé concernant la Coſmologie, & la Geologie, par J. A. de Luc. 8vo. Brunſwick, 1803. From the Author, by Dr. Barton.

Nature Diſplayed, in her mode of Teaching Language to Man, adapted to the French. 2 vols. 8vo. Philadelphia, 1804. By N. G. Dufief, the Author.

NEW PUBLICATIONS.

AN Eſſay on the analogy of the Aſiatic and African plague and the American yellow fever, with a view to prove that they are the ſame diſeaſe varied by climate and other circumſtances. By Phineas Jenks, of Pennſylvania, honorary member of the Philadelphia Medical and Chemical Societies.—Philadelphia---Maxwell, 1804. 8vo. pp. 52.

It is well known that of late years the idea of the contagious nature of the plague has been oppoſed by ſeveral eminent Phyſicians. Our author in his preface informs us that when he commenced his inquiry, he was inclined to favour the doctrine of the plague being a contagious diſeaſe, but that his reſearches, and the maſs of facts he has collected, have convinced him that his opinions were erroneous, and that he had fallen into a popular miſtake.

The firſt part of the eſſay itſelf is taken up with a view of the ſuppoſed origin of the plague by the Egyptians: at this enlightened era, it is added, it is no ways aſtoniſhing that ſuch vague and unmeaning conjectures ſhould be overthrown and ſuperſeded by theories which have at leaſt probability to recommend them to the world, and that he ſhall endeavour "to make it appear, that it is the natural effect of phyſical cauſes; or, in other words, the effect of the decompoſition of vegetable and animal matters." His reaſons for this opinion are then detailed, and are followed by a curſory view of the origin of the yellow fever, which, like the plague, he obſerves, is unknown in cleanly ſituations.

The analogy between the two diſeaſes is then brought into view, and an explanation is attempted why they ſometimes vary. This analogy is purſued under ſeveral heads.

The greater fatality and ſhorter duration of the plague, are accounted for on the principles of climate and other circumſtances. The different grades of plague and yellow fever are noticed; as likewiſe their different ſymptoms in different

years. Among others, the Sudor Anglicanus, or ſweating ſickneſs, is conſidered as the plague appearing with a determination to the ſkin.

Thoſe diſeaſes, which are truly contagious, as ſmall pox and meaſles, it is obſerved, cannot be taken a ſecond time, whilſt both plague and yellow fever may be repeatedly taken. An inſtance of death at Conſtantinople, from a twelfth attack of plague is mentioned; and the repeated attacks of yellow fever in ſeveral of our citizens are alſo noticed.

The non-occurrence of theſe diſeaſes every year, under the *ſame circumſtances* of filth, it is ſuppoſed, may depend, "in ſome degree, upon the heat of the ſun in cool ſummers being inſufficient to cauſe putrefaction and exhalation, but principally upon a coinciding malignant ſtate of the atmoſphere."

The exiſtence of this malignant ſtate of atmoſphere is inferred from ſeveral circumſtances.

A view of the diſeaſes, preceding and ſucceeding both plague and yellow fever, furniſhes the author with a ſtill further analogy between the two diſeaſes, as alſo do their precurſors. The empire which they both aſſume over all other diſeaſes when they are epidemic, is ſupported by the authority of Sydenham, Huxham, and Diemerbroeck, as well as by the revival of thoſe vanquiſhed diſeaſes after the decline of the epidemic.

The two diſeaſes under the ſame circumſtances, are aſſerted to yield to the ſame remedies, though theſe remedies differ in different years.

The contagious nature of theſe diſeaſes, next occupies the author's attention; which he oppoſes from various ſources with much ſucceſs. He does not deny that "under certain circumſtances they may be communicated from one perſon to another, by what has been happily called the *contagion of excretion.* He aſſerts however, that there is nothing ſpecific in thoſe excretions; "but that a diſeaſe ariſing from them, would be as apt to become a yellow fever, or a typhus fever, as the plague."

With reſpect to the yellow fever, our author ſays, that in "1793, when it firſt made its appearance, it was univerſally

believed to be contagious; but later experiments have taught many of our phyſicians, that their obſervations were too haſtily made, and their opinions prematurely formed." The number of phyſicians that died in 1793, though brought forward as a proof of its contagious nature, does not, he thinks, militate againſt his doctrine; "for thoſe phyſicians were debilitated by their previous labours, and conſequently, were conſtantly prediſpoſed to the diſeaſe. They were alſo in the habits of frequently viſiting parts of the city, where its cauſes obviouſly exiſted in the moſt concentrated ſtate." The exemption from this diſeaſe of many phyſicians of the city, as alſo of the apothecaries and attendants at the hoſpital eſtabliſhed for the reception of yellow fever patients, are very properly adduced as ſtubborn facts againſt the doctrine of contagion. The allowed abſence of contagion in the pure air of the country, by the favourers of the doctrine, is adverted to by the author, who aſks, "If then it requires a foul atmoſphere, or in other words, a ſituation where putrefaction and exhalation exiſt, (for without ſomething of the kind, no atmoſphere can be contaminated) why may not thoſe cauſes alone produce the diſeaſe?

The practice purſued in Aleppo, Grand Cairo and elſewhere, of ſhutting up, during the prevalence of the plague, without ſuppoſing it to be contagious, is highly commended by the author, as preventing the action of exciting cauſes upon the ſeeds of the diſeaſe floating in the ſyſtem.

The cauſes which deſtroy the ſources of exhalation, as extreme heat, heavy rains, &c. are alike injurious to both diſeaſes.

The author then enumerates ſome of the diſadvantages ariſing from the doctrine of contagion; and concludes, that he has "now traced the analogy of the plague and yellow fever through their cauſes, ſymptoms and duration, and cure; and it muſt appear very obvious that they are one and the ſame diſeaſe, differing only in the degrees of force from the exceſs of their cauſes. To contend, therefore, that they are different and ſpecific diſeaſes, would be as abſurd as to declare, that a yellow fever could not exiſt without a black vomit, or that an inflammation of

the lungs was not a peripneumony, becauſe there was an abſence of pain.*"

Elements of Life, or the Laws of Vital Motion, by John Ruſh, M. D. &c.---Philadelphia---Palmer. 8vo. pp. 34.

The author of this little tract, has with great ingenuity attempted to ſubvert the prevailing opinions of animal life—in order to eſtabliſh one, founded on the laws of chemical action. This doctrine, which has been lately promulgated in Europe, is as yet in its infancy in the United States. It is ſaid to contain "the ſubſtance of a ſpeech, which the author delivered before the medical ſociety of Philadelphia."—We are ignorant if the doctrine has gained many proſelytes in Great Britain, &c. but we underſtand, the preſent profeſſor of chemiſtry in this univerſity, is a decided ſupporter of it. Whether it will not meet the fate of its predeceſſors, time will evince.

The Philadelphia Medical and Phyſical Journal. Collected and arranged by Benjamin Smith Barton, M. D. Profeſſor of Materia Medica, Natural Hiſtory, and Botany, in the univerſity of Pennſylvania.—Part 1. vol. 1. Philadelphia. 1804—8vo. pp. 184.

This work is divided into four parts—"1. ORIGINAL COMMUNICATIONS relative to all the branches of *medicine*, *natural*

* Several errors occur in the printing of the Theſes, ſuch as tar*tite* for tar*trite*, Colum*na* Carn*ea* for Colum*næ* Car*neæ*, &c. In ſuch ſmall treatiſes, more attention ſhould certainly be paid to the correcting of the preſs. In one of the Theſes (on Mercury,) we have in a note a preſcription for the preparation of the antimonial powder: it is a compound of Latin and Engliſh; and from great inattention is rendered highly dangerous, as we are directed to uſe *muriate of mercury* (corroſive ſublimate) inſtead of *mild muriate of mercury* (calomel). Such errors are ſurely very diſgraceful to the Univerſity; and lead me to ſuggeſt to the reſpectable Faculty of medicine, the propriety of having a printer connected with their department, for the purpoſe of printing the Medical Theſes. By this meaſure, it is preſumed, correctneſs will be acquired by habit, and uniformity of ſize and type will be preſerved. By this meaſure alſo, no difficulty will exiſt in binding up a volume, (as at preſent is frequently the caſe,) eſpecially if the graduates themſelves, would diſtribute their diſſertations *uncut*.

hiſtory, and *phyſical geography*. 2. BIOGRAPHICAL SKETCHES of the lives of eminent phyſicians and naturaliſts, eſpecially thoſe of the laſt half of the 18th century, and of the preſent time. 3. REVIEWS of, and EXTRACTS from new publications in medicine, natural hiſtory, and geography, eſpecially thoſe which have been publiſhed in the United States, or which have a particular reference to this tract of country, &c. 4. MISCELLANEOUS FACTS, of various kinds, all, however, relating to the expreſſed objects of the work."

The reſpectable editor of this work, has evinced his partiality for the profeſſion in which he ranks ſo high, by his endeavours to extend his information to ſociety at large. As this is a work not excluſively medical, but largely appropriated to the natural hiſtory of our country, ſo it will be peruſed with pleaſure by all thoſe who are anxious for information on this head: As the various branches of this pleaſing ſtudy are purſued with great induſtry by the profeſſor; we may hope in a few years to have a copious reſervoir of all that is intereſting to our country, in this department of ſcience.

Friendly Cautions to the Heads of Families, &c. &c. &c. by Robert Wallace Johnſon, M. D. &c.—Philadelphia edition. J. Humphreys.---1804. 12mo. pp. 163.

We cannot but feel a ſincere pleaſure, in obſerving the frequent emiſſion from the preſſes of the Union, of ſo many works of merit, reprinted from the European editions. Whilſt it evinces the increaſing ſtate of literature amongſt us, it is a ſure pledge that when our own citizens ſhall find time to devote themſelves to ſcientific purſuits, no encouragement will be wanting. Among the various publications, none have afforded us more gratification, than the one whoſe title is hereto prefixed; we have peruſed it with that ſatisfaction, which its merit muſt enſure, both from the character of its author, and the extenſive advantages it is calculated to produce. The merit of this work (heretofore unknown amongſt us), is ſufficiently evinced by its having paſſed through three editions in Great Britain. As the editor has juſtly obſerved, " It is not

to one deſcription of perſons alone it will prove uſeful, but to every claſs of ſociety. As long as ſickneſs is a concomitant of humanity, ſo long will this, or ſome work of a ſimilar nature, retain its eſtimation. Its value may not be perceived by perſons in health, but when ſickneſs finds acceſs to ſome beloved friend, this little treatiſe will be regarded with pleaſure."—With a ſimilar impreſſion—we cannot but recommend it as a fit preſent for every family, and ſincerely wiſh it may be as beneficial to the active and benevolent publiſher, as it is certainly calculated to be to the ſick of every deſcription.

We hear with great pleaſure that profeſſor Ruſh is preparing for the preſs a new edition of his valuable medical works, to be compriſed in three volumes;—with many additions and improvements. This edition will appear in the courſe of the enſuing year. The high opinion entertained in all parts of the world, where medicine is cultivated, of this indefatigable phyſician, cannot but render this information as gratifying to others, as it has proved to the editor.

Dr. James Hutchinson of Philadelphia, is engaged in preparing for the preſs, a Treatiſe on Ulcers—particularly of the lower extremities. It will appear in the courſe of the enſuing year.

DEATHS.

AT Versailles, aged 79, Francis Dezoteux—formerly consulting surgeon of the camps and armies of the French king. He was one of the physicians to whom France was indebted for the introduction of the inoculation of the small pox.—He was obliged to carry on a celebrated process against the parliament of Besançon, which had declared against inoculation. He lost his whole fortune in the revolution.

On the 24th of last August, at Milan, the Abbate Fontana, one of the most celebrated naturalists of Europe.

In March last, John Relph, M. D. senior physician to Guy's hospital, and author of "an Inquiry into the Medical Efficacy of Yellow Bark."

The Rev. John Walker, M. D. professor of natural history in the university of Edinburgh.

Thomas Percival, M. D. &c. of Manchester, England, a gentleman well known by his numerous medical and philosophical writings.

NOTICE TO CORRESPONDENTS.

Dr. Farquhar's paper on the Angina Maligna, is received, and will appear in our next number.

Dr. Dewees's "Examination of Dr. Osburn's opinion of the physical necessity of pain and difficulty in human parturition," is received, and will appear in our next.

Several other communications from the same gentleman, and others, are received and will appear in order.